LAST 38 EXAMS PYQ

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and so the ADVENTURE Begins

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Number Series, Coding & Decoding, Odd Man Out

TO BUY HARDCOPY OF PYQs

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May 2018

Q1. In a certain code, RIPPLE is written as 613382 & LIFE is written as 8192. How is PILLER written in that code?
(a) 318826 (b) 318286 (c) 618826 (d) 338816

Q2. In a certain code '256' means 'you are good', '637' means 'we are bad' and '358' means 'good and bad'. Which of the following represents 'and' in that code?
(a) 2 (b) 5 **(c) 8** (d) 3

Q3. If LOSE is coded as 1357 and GAIN is coded as 2468, what do figure 82146 for?
(a) NGLAI (b) NGLIA (c) GNLIA (d) GNLA

Nov 2018

Q4. If PLAY is coded as 8123 and RHYME is coded as 49367. What will be code of MALE?
(a) 6217 (b) 6198 (c) 6395 (d) 6285

Q5. Find next number in series 7, 11, 13, 17, 19, 23, 25, 29.
(a) 30 **(b) 31** (c) 32 (d) 33

Q6. If HONEY is coded as JQPGA, which word is code as VCTIGVU?
(a) CARPETS (b) TRAPETS **(c)TARGETS** (d) UMBRELU

Q7. Find odd man out of following series 15, 21, 63, 81, 69.
(a) 15 (b) 21 (c) 63 **(d) 81**

Q8. Find odd man out of following series 7, 9, 13, 17, 19
(a) 7 **(b) 9** (c) 19 (d) 13

June 2019

Q9. Find the next number in the series: 7, 23, 47, 119, 167
(a) 211 (b) 223 **(c) 287** (d) 319

Q10. Which the odd one: 4, 12, 44, 176, 890
(a) 4 (b) 12 **(c) 44** (d) 176

Q11. If in a Certain language, MADRAS is coded as NBESBT, How BOMBAY is coded in that code?
(a) CPNCBX **(b) CPNCBZ** (c) CPOCBZ (d) None

Q12. Which of the following is odd one?
(a) CEHL (b) KM PT (c) OQTX **(d) NPSV**

Nov 2019

Q13. Complete the series. 4, 16, 36, 64, 100, ___
(a) 144 (b) 121 (c) 49 (d) 120

Q14. If MADRAS is NBESBT. Now DELHI is coded as:
(a) EMMJI (b) JIFEM **(c) EFMIJ** (d) CDKGH

Q15. Find the odd man out 5, 10, 17, 27, 37:
(a) 5 (b) 17 **(c) 27** (d) 10

Q16. Complete the series 4, 16 _ 256, 1024
(a) 32 (b) 48 **(c) 64** (d) 46

Q17. SYSTEM is coded as 131625 then TERMS is code as
(a) 62251 **(b) 62451** (c) 64251 (d) 62415

Q18. Find the odd one out: 1, 5, 14, 30, 49, 55, 91
(a) 49 (b) 30 (c) 55 (d) 91

Nov 2020

Q19. Find missing value 0, 2, 3, 6, 10, 17, 28, __, 75.
(a) 58 **(b) 46** (c) 48 (d) 54

Q20. Find the missing value in $\frac{3}{8}, \frac{8}{19}, \frac{18}{41}, ?, \frac{78}{173}$.
(a) $\frac{37}{84}$ (b) $\frac{40}{87}$ (c) $\frac{39}{86}$ **(d) $\frac{38}{85}$**

Q21. Find odd one: 6, 9, 15, 21, 24, 26, 30
(a) 30 (b) 24 **(c) 26** (d) 9

Q22. If HEALTH is written as IFBMUI, then how will NORTH be written in that code?
(a) OPSUI (b) GSQNM (c) FRPML (d) IUPSO

Q23. Find wrong term in: G4T, J10R, M2OP, P43N, S90L
(a) M20P (b) P43N **(c) J10R** (d) G4T

Q24. Find the next term 1, 5, 21, 57, ___.
(a) 105 (b) 138 **(c) 121** (d) 101

Jan 2021

Q25. Find the next term: $\frac{1}{2}, \frac{3}{4}, \frac{5}{8}, \frac{7}{16}$
(a) 9/32 (b) 10/17 (c) 11/34 (d) 12/35

Q26. Find the next term: P3C, R5F, T81, V12L, __
(a) Y17O (b) X17M **(c) X17O** (d) X16O

Q27. Find out the odd man out 8, 25, 64, 125, 216.
(a) 25 (b) 64 (c) 125 (d) 216

Q28. In a certain Code Language BEAT is written as YVZG, then what will be Code for MILD?
(a) ONRW (b) NOWR (c) ONWR **(d) NROW**

Q29. In a certain code RIPPLE is written as 613382, & LIFE is written as 8192. RIFFLE will be written as ____.
(a) 618892 (b) 689912 **(c) 619982** (d) 629981

July 2021

Q30. Find the missing term 1, 1, 8, 4, 27, ____, 64, 16
(a) 27 (b) 11 **(c) 9** (d) 125

Q31. If DELHI is coded as EFMIJ, JAIPUR will be coded as_
(a) JQVSBK (b) QVSKBJ (c) BJQVSK **(d) KBJQVS**

Q32. If FRAME is coded as 0618011305, ARISE is coded as__.
(a) 0118091905 (b) 0119091805
(c) 0118190905 (d) 0118091805

Q33. Odd man out: 225, 196, 169, 144, 121, 100, 77, 64, is:
(a) 121 **(b) 77** (c) 100 (d) 169

Q34. If CLOCK is coded as 34235 and TIME as 8679, then MOTEL is coded as:
(a) 27894 (b) 72964 **(c) 72894** (d) 77684

Q35. If MOUSE, is coded as 34651 and KEY is coded as 217, then how will YES be coded?
(a) 715 (b) 517 (c) 175 (d) 571

Dec 2021

Q36. What comes at the last place in R, U, X, A, D.....?
(a) E (b) F **(c) G** (d) H

Q37. Missing term of the series 4, 13, _____, 49, 76 is
(a) 26 **(b) 28** (c) 30 (d) 32

Q38. Find the odd one from the following:
(a) Zebra (b) Giraffe (c) Horse **(d) Tiger**

Q39. In a certain code, MENTION is written as LNEITNO. How is PRESENT written in that code?
(a) NTSEREO **(b) OERESTN**
(c) ERESTNO (d) ROESTNE

Q40. If in a certain code "THANKS" is written as "SKNTHA" then how is "STUPID" written?
(a) DIPUTS (b) DISPUT (c) DIPUST **(d) DIPSTU**

June 2022

Q41. 7, 26, 63, 124, 215, 342 _____ ?
(a) 511 (b) 672 (c) 508 (d) 556

Q42. LOTUS is coded as 14682 and STRANGE is coded as 2690753. How will you code GESTURE
(a) 5236893 (b) 5326793
(c) 5346893 **(d) 5326893**

Q43. 4, 6, 9, 13.5, _____, 30.375
(a) 40.50 **(b) 20.25** (c) 40.75 (d) 60.25

Q44. Code for the word TELEPHONE is ENOHPELET, how will the word ALIGATOR be written in that code?
(a) ROTAGILA (b) ROTAGAIL (c) ROTAGILE (d) None

Q45. Find next term 9, 27, 31, 155, 161, 1127, __
(a) 1316 **(b) 1135** (c) 1288 (d) 2254

Q46. Find missing terms 12, 9, 13.5, 30.375, ___, 341.71875
(a) 91.125 (b) 89.145 (c) 90.475 (d) 92.48

Q47. Find out the next term 6, 13, 28, 59, ____
(a) 122 (b) 114 (c) 113 (d) 112

Dec 2022

Q48. If 'FROZEN' is decoded as 'OFAPSG'. Tick the right option that depicts 'MOLTEN' written in this way?
(a) OFPOMN (b) OFSMPN **(c) OFUMPN** (d) OFUNPN

Q49. Find the odd man out: 34, 105, 424, 2123, 12756.
(a) 12756 **(b) 2123** (c) 424 (d) 34

Q50. Find missing number 3, 5, 5, 19, 7, 41, 9, __, 11, 109
(a) 71 (b) 61 (c) 69 (d) 79

Q51. In certain code language, if TOUR, is written as 1234, CLEAR is written 5678 & SPARE is written as 90847, find the code for CARE?
(a) 1247 (b) 4847 (c) 5247 **(d) 5847**

Q52. Find the next number 11, 17, 39, 85, ___, 281, 447
(a) 133 (b) 143 (c) 153 **(d) 163**

Q53. If ROSE 'is coded as 6821, CHAIR is coded as 73456 & PREACH is coded as 961473, what will be code for SEARCH?
(a) 246173 **(b) 214673**
(c) 216473 (d) 214763

June 2023

Q54. Find the next number Q1F, S2E, U6D, W21C ..... ?
(a) Y66B (b) Y44B **(c) Y88B** (d) Z66B

Q55. Find odd man out 190, 145, 136, 352, 460, 324, 631, 244
(a) 460 (b) 244 (c) 136 **(d) 324**

Q56. Find missing number 7, 26, 63, 124, 215, ___, 511
(a) 342 (b) 443 (c) 441 (d) 421

Q57. In a certain cade MENTION is written as LNEITNO, how is PRESENT coded?
(a) QFSFTUM (b) ONESERP
(c) QRESTNO **(d) OERESTN**

58. Find the odd man out: 41, 43, 47, 53, 61, 71, 83, 95.
(a) 95 (b) 83 (c) 71 (d) 53

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Direction Sense Test

TO BUY HARDCOPY OF PYQs

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May 2018

Q1. Laxman went 15 km to North then he turned West and covered 10 kms. Then he turned South and covered 5 km. Finally turning to East he covered 10 km. In which direction he is from his house.
(a) East (b) West **(c) North** (d) South

Q2. A man is facing East, then he turns left and goes 10 meter then turns right and goes 5 meter then goes 5 meter to the South and from there, 5 meter to West. In which direction is he from his original place?
(a) East (b) West **(c) North** (d) South

Q3. X walks southwords and then turns right, then left and then right. In which direction is he moving now?
(a) South (b) North **(c) West** (d) East

Q4. Raman starts walking in the morning facing the Sun. After sometime, he turned to the left, later again he turned to his left. In what direction is Raman moving now?
(a) East **(b) West** (c) South (d) North

Q5. I stand with my right hand extended side-ways towards south. Towards which direction will my back be?
(a) North **(b) West** (c) East (d) South

Q6. You go North, turn right, then right again and then go to the left. In which direction are you now?
(a) South **(b) East** (c) West (d) North

Nov 2018

Q7. Six flats on a floor in two rows facing North and South are allotted to P,Q,R,S,T and U. Q gets a North facing flat and is not next to S. S and U get diagonally opposite flats. R next to U, gets a South facing flat and T gets a North facing flat. Whose flat is between Q and S ?
(a) T (b) U (c) R (d) P

Q8. Anoop Starts walking towards South. After walking 15 metres, he turns towards North. After walking 20 metres, he turns towards East and walks 10 metres. He then turns towards south and walks 5 metres. In which direction is he from the original position.
(a) North (b) South **(c) East** (d) West

Q9. Rahim started from point X and walked straight 5 km west, then turned left and walked straight 2 km, then again turned left and walked straight 7 km. In which direction is he from the point X?
(a) North-East (b) South-West **(c) South-East** (d) None

Q10. A man started to walk East, After moving a distance, he turned to his right. After moving a distance, he turned to his right again. After moving a little he turned in the end to his left. In which direction was he going now?
(a) East (b) West (c) North **(d) South**

Q11. Manu wants to go to market. He starts from his house towards North & reaches a crossing after 30m. He turns towards East, goes 10m till second crossing & turns again, moves towards south straight for 30m where marketing complex exits. In which direction is market from his house?
(a) North (b) South **(c) East** (d) West

June 2019

Q12. Sangeeta leaves from her home. She first walks 30 meters in northwest direction and then 30 metres in south west direction, next she walks 30 metres in south-east direction. Finally, she turns towards her house. In which direction is she moving now?
(a) North west **(b) North East** (c) South east (d) None

Q13. When a person faces north and walks 25m right then turns left and walks 20m, and again turns right and walks 25m, and turns right, and walks 25m, and turns right and walks 40m, in which direction is he now from his starting point?
(a) North west (b) North East **(c) South east** (d) None

Q14. Madhuri moved a distance of 75 meters toward north. She then turned to her left & walked for about 25m, turned left again and walked 80m. Finally, she turned to her right at an angle of 45°. In which direction was she moving now?
(a) North west (b) North East **(c) South west** (d) None

Q15. A person facing North moves 70° in clockwise direction. He again moved 300° in clockwise direction. In which direction is he facing now?
(a) North west (b) South east **(c) North east** (d) None

Nov 2019

Q16. Mohan started from a point and walked towards west. He took left to reach Sohan's house. In which direction should he move to reach his house?
(a) North east (b) South east (c) South west (d) None

Q17. A man stands on a point and starts walking towards north. He then turns left, then turns right, and then left. In which direction he is moving now?
(a) West (b) North (c) East (d) South

Q18. A man started from a point facing north, turned left, again left & then right. In which direction he is facing now?
(a) East **(b) West** (c) North (d) South

Q19. Rohan is driving cycle from his house towards north, he turns left & then left again. Which direction he is facing?
(a) East (b) West (c) North **(d) South**

Q20. Sun rises behind the tower and sets behind the railway station. In which direction is the tower from railway station?
(a) North (b) South **(c) East** (d) West

Q21. A dog is taken out by its owner whose house faces east. They walk 200m west, then 500m in the south direction. In which direction is his house from his place?
(a) North **(b) North-East** (c) East (d) South

Nov 2020

Q22. Rahim faces north turning to his right walks 25 meters. He then turns to his left & walks 30 meters. Next, he moves 25 meters to his right. He turns to his right again and walks 55 meters. Finally, he turns to right & moves 40 metre. In which direction is he now from starting point?
(a) South west **(b) South east** (c) South (d) West

Q23. A man can walk by having long, medium and short steps. He can cover 60 meters by 100 long steps, 100 meters by 200 medium steps and 80 meters by 200 short steps, he walks taking 5000 long steps, then he turns left and walk by taking 6000 medium steps. He then turns right and walk by taking 2500 short steps. How far (in meters) is he away from his starting point?
(a) 5000m (b) 4000m (c) 6000m (d) 7000m

Q24. One day, Ram left home and cycled 10 km southward, turned right and cycled 5 km and turned right and cycled 10 km and turned left and cycled 10 km. How many kilometers will he have to cycle to reach his home straight?
(a) 10 **(b) 15** (c) 20 (d) 25

Q25. If you are facing North-east & move 10m forward, turn left & move 7.5m, then you are in ___ of your initial position
(a) North (b) South (c) East (d) None

Q26. A man is facing west. He turns 45° in clockwise direction & then another 180° in same direction & then 270° in anticlockwise direction. Which direction is he facing now?
(a) South west (b) North west (c) West (d) South

Jan 2021

Q27. A man is facing west. He turns 45° in the clockwise direction and then another 180° in same direction and then 270° in anti-clockwise direction. Which is the facing now?
(a) South-West (b) North-West (c) West (d) South

Q28. One day Ram left home and bi-cycled 10 km southwards, turned right and travelled 5km and turned right and went 10km he turned left and went 10km how many kilometers he has to cycle to reach his home straight?
(a) 10 **(b) 15** (c) 20 (d) 25

Q29. Ms. N walks 10km towards North from there she walks 6km towards South. Then she walks 3km towards East. How far & in which direction is she from her starting point?
(a) 4 km West (b) 6 km West
(c) 3 km East **(d) 5 km North-East**

July 2021

Q30. There are four towns P, Q, R and T. Q is to the South-West of P, R is to the East of Q and South-East of P and T is to the North of R in line with QP. In which direction of P is T located?
(a) North **(b) North-East** (c) East (d) South

Q31. One morning after Sunrise, Vikram and Shailesh were standing in a down with their back towards each other. Vikram's shadow feli exactly towards left hand side. Which direction was Shailesh facing?
(a) South west (b) East-South **(c) South** (d) West

Q32. A and B start moving towards each other from two places 200m apart. After walking 60m, B turns left and goes 20m, then he turns right and goes 40 m. He then turns right again and comes back to the road on which he had started walking. If A and B walk with the same speed, what is the distance between them now?
(a) 80 m (b) 70 m **(c) 40 m** (d) 60 m

Q33. Five Friends A, B, C, D, E are staying in the same locality. B's house is to the East of A's house and to the North of C's house. C's house is to the West of D's house. D's house is in which direction with respect to A's house?
(a) North east **(b) South east** (c) North west (d) West

Dec 2021

Q34. A person walks 1 km (kilometre) towards West and then he turns to South and walks 5 km. Again, he turns to West and walks 2 km. After this he turns to North and walks 9 km. How far is he from his starting point?
(a) 3 km (b) 4 km **(c) 5 km** (d) 7 km

Q35. Daily in the morning the shadow of a Clock Tower installed on Railway Station falls on high rise Mall and in the evening the shadow of the same Mall falls on the Clock Tower installed on Railway Station exactly. So in which direction is Clock Tower to Mall?
(a) East (b) West (c) North (d) South

Q36. R's office is 4 km. in East direction from his home and club is 4km. in North direction from his home. On midway from office to club, R starts moving towards his home. In which direction is he facing his back?
(a) North east (b) South east (c) North west (d) West

Q37. A man starts from a point, walks 4 miles towards North and turns left and walks 6 miles, turns right and walks for 3 miles and again turns right and walks 4 miles and takes rest for 30 minutes. He gets up and walks straights miles in the same direction and turns right and walks one mile. What is the direction he is facing?
(a) North **(b) South** (c) South-East (d) West

Q35. Hour hand of a clock is in west direction when time is 3'0 clock. What is the direction of minutes hand @ 6:45?
(a) East (b) West (c) North (d) South

June 2022

Q36. A sign board pointing direction towards north due to heavy wind. Points of sign word shows west instead of North. If a person moves to same direction of pointer. He moves 100m then turn left & moves 100m then again turn left & move 100m then turn right & moves 100m. In which direction he is now?
(a) West (b) East (c) North **(d) South**

Q37. If Ramu faces West and moves 5 km in direction then takes a left turn and moves 10 km then take another left turn and moves 15 km in same direction then moves 10 km in the north direction and reaches point A. What is the distance b/w starting point & A. Which direction is Ramu facing now?
(a) 10 km, North (b) 5 km, South (c) 10 km, South (d) None

Q38. If P x Q means P is to the South of Q; P + Q means P is to the North of Q; P % Q means P is to the East of Q and P - Q means P is to the West of Q; then in A% B + C - D; D is in which direction with respect to A?
(a) North-West **(b) South-East** (c) North- East (d) South.

Q39. One day Ram left home and cycled 10 km southward, turned right and cycled 5 km and turned right and cycled 10 km and turned left to cycle 10 km. How many kilometers- will he have to cycle to reach his home?
(a) 10 (b) 20 **(c) 15** (d) 25

Q40. A, B, C, D, E, F, G, H and I are nine poles. C is 2 km east of B. A is 1 km north of B and H is 2 km south of A. G is 1 km west of H while D is 3 km east of G and F is 2 km north of G. I is situated just in middle of B and C while E is just in middle of H and I. Distance between B and I is?
(a) 1 km (b) 1.41 km (c) 2 km (d) 3 km

Q40. A person facing north moves 70° clockwise. He again moved 300° anticlockwise. Which direction is he facing now?
(a) North west **(b) South east** (c) North east (d) None

Q42. Puru was driving his car & at a circle there was direction pole, which was showing all 4 correct directions. But due to the wind, it turns such that now North pointer is showing West. Puru went in wrong direction thinking that he was travelling east. In what direction he was actually travelling?
(a) West (b) East **(c) North** (d) South

Dec 2022

Q41. Radha moves towards South-East a distance of 7 km, then she moves towards West and travels a distance of 14 km. From here she moves towards North -West a distance of 7 km. and finally she moves a distance of 4 km. towards East. How far is she now from the starting point?
(a) 3 km. (b) 4 km. **(c) 10 km** (d) 11 km

Q42. One morning a boy starts walking in a particular direction for 5 Km and then takes a left turn and walks another 5 Km. thereafter he again takes left turn and walks another 5 Km and at last he takes right turn and walks 5 Km. Now he sees his shadow in front of him. What direction he did start initially?
(a) South **(b) North** (c) West (d) East

Q43. It is 3'o clock in a watch. If the minute hand points towards the North-East then the hour hand will point towards the:
(a) South (b) South – West
(c) North-West **(d) South - East**

Q44. A man is facing West. He turns 45 degree in the clockwise direction and then another 180 degree in the same direction and then 270 degree in the anticlockwise direction. Find which direction he is facing now?
(a) South-East (b) West
(c) South **(d) South-West**

June 2023

Q45. Sunita walks a distance of 2 km towards East, Turns left and moves 1 km then turn left and moves 2 km and then turns left again and moves 1km then halts at what distance Sunita is now from now from the starting point?
(a) 0 km (b) 1 km (c) 2 km (d) 6 km

Q46. Deepika starts walking towards east after walking 65m. She turns to the left and walk 25m in straight. Again, she turned to left and walks distance of 40m. At what distance and in which direction currently she is from the starting point.
(a) 35m in the North-East (b) 35.35 in South-East
(c) 25m in North (d) 25m in west

Q47. Mr. Kartik puts his timepiece on the table in such a way that at 6pm. Hours hand points to north & Which direction. The minute hard will point at 9.15p.m.
(a) South – East (b) East
(c) West (d) South-west

Q48. Srikant is facing east & turns 120° in the clockwise direction and then turn 180° in the anticlockwise direction. Which direction is Srikant facing long.

(a) East **(b) North-East** (c) South -West (c) West

Q49. 5 Boys Ajay, Brajmohan, Chandru, Dheeraj and Ehsaan are sitting in a part in a circle facing the center. Ajay is facing south west. Dheeraj is facing South East. Brajmohan and Ehsan are right opposite Ajay and Dheeraj respectively and Chandru is equidistant between, Dheeraj and Brijmohan. Which direction is Chandru Facing.
(a) west (b) south (c) north **(d) East**

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Seating Arrangement

TO BUY HARDCOPY OF PYQs

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May 2018

Q1. Five boys A,B,C,D & E are sitting in a row. A is to the right of B & E is to the left of B but to the right of C. A is to the left of D. Who is second from the left end?

(a) D (b) A **(c) E** (d) B

Q2. Five senior citizens are living in a multi-storeyed building. Mr. Manu lives in a flat above Mr. Ashokan, Mr. Lokesh in a flat below Mr. Gaurav, Mr. Ashokan lives in a flat below Mr. Gaurav & Mr. Rakesh lives in a flat below Mr. Lokesh. Who lives in the topmost flat?

(a) Mr. Lokesh (b) Mr. Gaurav **(c) Mr. Manu** (d) None

Q3. Six children A, B, C, D, E & F are standing in a row. B is b/w F & D. E is b/w A & C. A does not stand next to F or D. C does not stand next to D. F is b/w which of the following pairs of children?

(a) B & E **(b) B & C** (c) B & D (d) B & A

Q4. Five children are sitting in a row. S is sitting next to P but not T. K is sitting next to R, who is sitting on the extreme left & T is not sitting next to K. Who is/are adjacent to S.

(a) K+P (b) R+P (c) Only P **(d) P & T**

Nov 2018

Q5. Eight persons A, B, C, D, E, F, G & H are sitting in a line. E sits second right to D. H sits fourth left to D. C & F are immediate neighbours, but C is not immediate neighbour of A. G is not neighbour of E. Only two persons sit b/w A & E. The persons on left end & right end respectively are:

(a) G & E (b) B & E (c) H & E (d) G & B

Q6. Six children A, B, C, D, E & F are sitting in a row. B is b/w F & D. E is b/w A & C. However, A does not sit next to F or D. C does not sit next to D. F is sitting b/w

(a) B & C (b) E & C (c) B & D (d) None

Q7. Five students A, B, C, D & E are standing in a row. D is on the right of E, B is on the left of E but on the right of A. D is next to C on his left. The student in middle is

(a) B **(b) E** (c) C (d) A

Q8. Six flats on a floor in two rows facing North & South are allotted to P, Q, R, S, T & U. Q gets a North facing flat & it is not next to S. S & U get diagonally opposite flat. R next to U gets a South facing flat & T gets a North facing flat. Whose flat is b/w Q & S?

(a) T (b) U (c) R (d) P

June 2019

Q9. Four girls are seated for a photograph. Shikha is to the left of Reena. Manju is to the right of Reena. Reeta is b/w Reena & Manju. Who is the second left in photograph?

(a) Reena (b) Manju (c) Reeta (d) Shikha

Q10. Six persons are sitting in a row. B is b/w F & D. E is b/w A & C. A does not stand next to F or D, C does not stand next to D. F is b/w which of the following persons?

(a) B & E **(b) B & C** (c) B & D (d) B & A

Q11. Five children are sitting in a row. S is sitting next to P but not T. K is sitting next to R. K is sitting on extreme end. T is not sitting next to K. Who are sitting adjacent to S?

(a) K&P (b) R&P (c) Only P **(d) P & T**

Q12. Five boys A, B, C, D & E are sitting in a row. A is to the right of B & E is to the left of B but to the right of C. A is to the left of D. Who is second from the left end?

(a) D (b) A **(c) E** (d) B

Nov 2019

Q13. Six person are sitting in a circle facing the center. Parikh is b/w Bablu & Narender; Ashok is b/w Chitra & Pankaj. Chitra is on the immediate left of Bablu. Who is on the immediate right of Bablu?

(a) Parikh (b) Pankaj (c) Narender (d) Chitra

Q14. C is b/w A & B, E is at the extreme right & D is on the left of E. Who is in the middle?

(a) A **(b) B** (c) D (d) E

Q15. 5 person are standing in a line. One of the 2 persons at the extreme ends is a professor & the other is a businessman. An advocate is standing to the right of a student. An author is to the left of the business man. The student is standing b/w the professor & advocate. Counting from left, the author is at which place?

(a) 2^{nd} (b) 3^{rd} **(c) 4^{th}** (d) none

Nov 2020

Q16. Five girls G, H, I, J, K are sitting in a row facing South not necessarily in the same order H is sitting b/w G & K, I is immediate right to K, J is immediate left to G. Which is true?

(a) J is third to the left of K
(b) G is second to the left of I
(c) H is to the right of K
(d) H is to the left of G

Q17. Eight friends I, J, K, L, M, N, O & P are sitting in a circle facing the centre. J is sitting b/w O & L; P is third to the left of J & - second to the right of I; K is sitting b/w I & 0; J & M are not sitting opposite to each other. Which is not correct?

(a) K is sitting third to the right of L
(b) L & I are sitting opposite to each other
(c) I is sitting b/w K & N
(d) M is sitting b/w N & L

Q18. A, B, C, D, E & F are sitting around a round table. A is between E and F. E is opposite to D and C is not in either of the neighbouring seats of E. Who is opposite to B?
(a) F (b) C (c) D (d) E

Q19. Six persons A, B, C, D, E and F are standing in a circle B is between D and C A is between E and C F is to the right of D Who is between A and F?
(a) B (b) C (c) D **(d) E**

Jan 2021

Q20. A, B, C & D are playing cards, A & B are partners. D faces towards North. If A faces West, then who faces south?
(a) C (b) B (c) D (d) None

Q21. A is seated b/w D & F at a round table. C is seated opposite to D. E is round adjust to D. Who sit opposite to B?
(a) A (b) D (c) C (d) F

Q22. Four Indian, A, B, C & D & four Chinese E, F, G & H are sitting in a circle around a table facing the each other in a conference. No two Indians or Chinese are sitting side by side, C who is sitting b/w G & E is facing D, F is b/w D & A & facing G, H is to the left of B. Who is sitting left of A?
(a) E (b) F (c) G (d) H

Q23. Five friends A, B, C, D & E are sitting on a bench. A is sitting next to B; C is sitting next to D, D is not sitting with E; E is at the left end of bench. C is on second position from the right; A is on the right side of B who is the right side of E. A & C are sitting together. What is the position of B?
(a) Second from right (b) Centre
(c) Extreme left **(d) Second from left**

Q24. A, B, C, D & E are sitting on the bench. A is sitting next to B, C is sitting next to D, D is not sitting with B who is on the left end of the bench. C is on the second position from the right. A is to the right of B & E. A & C are sitting together in which position A is sitting b/w?
(a) C & D (b) D & E **(c) B & C** (d) B & D

July 2021

Q25. Five girls are sitting on a bench to be photographed. Seema is to the left of Rani & to the right of Bindu. Mary is to the right of Rani. Reeta is b/w Rani & Mary. Who is sitting immediate right to Reeta?
(a) Seema (b) Rani (c) Bindu **(d) Mary**

Q26. A, B, C, D, E, F & G are sitting in a row facing north. F is to the immediate right of E. E is 4th to the right of G. C is the neighbor of B & D. Person who is third to the left of D is at one of ends. Who are to the right of D?
(a) E, F & A (b) G, B & C **(c) C, B & E** (d) G & B

Q27. Six friends P, Q, R, S, T & U are sitting around the hexagonal table each at one corner & are facing the centre of the hexagonal. P is second to the left of U.Q is neighbor of R & S. T is second to the left of S. Which one is sitting opposite to S?
(a) R **(b) P** (c) Q (d) S

Dec 2021

Q28. Six children, named as P, Q, R, S, T & U, are sitting is a row, Q is b/w U & S, T is b/w P & R, P dose not sit next to either U or S. R does not sit next to S. So, U is setting b/w the pairs ____ of children.
(a) Q & T **(b) Q & R** (c) Q & S (d) Q & P

Q29. Five persons A, B, C, D & E are sitting in a row. A sits left to C & C sits left to B. E sits right to B, D sits in b/w E & B. Who is sitting in the middle?
(a) B (b) C (c) E (d) D

Q30. Four ladies A, B, C & D & four Gentlemen E, F, G & H are sitting in a circle around a table facing each other:
I. No two ladies or gentleman are sitting side by side.
II. C, who is sitting b/w G & E, is facing D.
III. F is b/w D & A facing G.
IV. H is to the right of B.
Who is immediate neighbour of B?
(a) G & H (b) E & F (c) E & G (d) A & B

Q31. Persons M, N, O, P, Q, R, S, & T are sitting on a compound wall facing North. O sits fourth left of S; P sits second to the right of S; only two people sit b/w P & M; N & R are immediate neighbours of each other. N is not an immediate neighbour of M; T is not the neighbour of P. How many persons are seated b/w M & Q?
(a) One (b) Two (c) Three (d) Four

Q32. In a line, P is sitting 13th from left. Q is sitting 24th from the right & 3rd left from P. How many people are sitting in the line?
(a) 34 (b) 31 (c) 32 **(d) 33**

June 2022

Q33. Six friends Surya, Bhanu, Dinkar, Ravi, Suraj and Dinesh are sitting in a circle and are facing the centre of the circle, Dinesh is between Dinkar and Suraj. Bhanu is between Ravi and Surya. Dinkar and Ravi are opposite to each other. Who are the immediate neighbours of Ravi?

(a) Suraj and Dinesh (b) Dinkar and Bhanu
(c) Surya and Dinesh **(d) Bhanu and Suraj**

Q34. Eight persons E, F, G, H, I, J, K and L are seated around a square table, facing table - two on each side. J is between L and F; G is between I and F; H a lady member is second to the left of J; F a male member is seated opposite to E, a lady member There is a lady member between F and I. who among the following is to the immediate left of F?

(a) G (b) I **(c) J** (d) H

Q35. If six person are sitting in a hexagonal table are P, Q, R, S, T, U each facing the centre. P is seated to opposite to Q who is b/w R & S. P is b/w T & U. T is the left of S. Which of them is facing R?

(a) P (b) Q (c) U **(d) T**

Q36. Five boys A, B, C, D, E, are sitting in a row. A is to the right of B & E is to the left of B, but to the right of C. A is to the left of D. Who is second from the left end?

(a) D (b) A **(c) E** (d) B

Q37. Five persons are sitting on a bench to be photographed, S is to the left of N and to the right of B. M is to the right of N. R is between N & M. Who is sitting immediate right to R?

(a) B (b) N **(c) M** (d) S

Dec 2022

Q38. Six persons A, B, C, D, E & F are sitting in two rows with three persons in each row. Both rows are in front of each other. E is not at the end of the any row & D is second left to the F, C is neighbour of E & diagonally opposite to D. If B is neighbour of F who is in front of C then who is sitting diagonally to F?

(a) C (b) E **(c) A** (d) D

Q39. P, Q, R & S are playing a game of carrom. P, R & S, Q are partners. 'S' is to the right of 'R'. If 'R' is facing West, then 'Q' is facing which direction?

(a) South **(b) North** (c) East (d) West

Q40. P, Q, R, S & T are sitting in a line facing West. P & Q are sitting together. R is sitting at South end & S is sitting at North end. T is neighbour of Q & R. Who is sitting the middle?

(a) P **(b) Q** (c) R (d) S

June 2023

Q41. Six friends A, B, C, D, E & F are setting around a circular table facing towards the Centre of the circle. E is not sitting b/w B&A. A sits to the left of F&C is fourth to the right of A. D is immediate right of E. who sits second to right of F?

(a) C (b) A **(c) D** (d) B

Q42. 7 Friends A,B,C,D,E,F,G were sitting is a row E is sitting at an extreme end. C is sitting next to E. B is sitting b/w A & C. G is not sitting at an extreme end. A is not at an extreme end. D is sitting immediate to F. Who is sitting in the middle.

(a) G (b) D (c) C **(d) A**

Q43. Pran, Komai, Ravi, Shalu, Trilok, Urui, Baasu & Bolter are sitting in a row facing North

(i) Pran is fourth to the right of Trilok
(ii) Volter is forth to the left of Shalu
(iii) Ravi & Urai which are not at the ends are neighbor of komal & Trilok respectively.
(iv) Volter is immediate left of Pran andPran is the neighbor of Komai. Identify who are sitting at the extreme ends.

(a) Pran & Bolter (b) Trilok & Urui
(c) Trilok & Shalu (d) Shalu & Pran

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Blood Relations

TO BUY HARDCOPY
OF PYQs

SCAN ME

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May 2018

Q1. Vinod introduced Vishal as the son of the only brother of his father's wife. How is Vinod related to Vishal?
(a) Cousin (b) Brother (c) Son (d) Uncle

Q2. Suresh introduces a man as "he is the son of the woman who is the mother of the husband of my mother". How is Suresh is related to the man?
(a) Cousin **(b) Son** (c) Brother (d) Nephew

Q3. A reads a book and find the name of the author familiar. The author 'B' is the paternal uncle of C. C is the daughter of A. How is B related to A?
(a) Brother (b) Sister (c) Father (d) Uncle

Q4. P and Q are brothers R and S are sisters. P's son is R's brother. How is Q related to R?
(a) Uncle (b) Brother (c) Father (d) None

Q5. A prisoner introduced a boy who came to visit him to the jailor as "Brothers and sisters I have none, he is my father's son's son". Who is the boy?
(a) Nephew **(b) Son** (c) Cousin (d) Uncle

Nov 2018

Q6. Pointing to a man in a photograph, a woman said, "the father of his brother is the only son of my grandfather", how is the woman related to the man in the photograph?
(a) Mother (b) Aunty (c) Daughter **(d) Sister**

Q7. Six persons are seen together in a group. They are A, B, C, D, E and F. B is the brother of D, but D is not brother of B. F is the brother of B, C and A are married together. F is son of C, but C is not the mother of F. E is the brother of A. The number of female members in the group is:
(a) 1 **(b) 2** (c) 3 (d) 4

Q8. Ram and Mohan are brothers, Shankar is Mohan's father. Chhaya is Shankar's sister. Priya is Shankar's niece. Shubhra is Chhaya's granddaughter. How is Ram related to Shubhra?
(a) Brother **(b) Uncle** (c) Cousin (d) Nephew

Q9. If P + Q means P is the mother of Q; P ÷ Q means P is the father of Q; P - Q means P is the sister of Q; then which of the following relationship shows that M is the daughter of R?
(a) R ÷ M + N (b) R + N ÷ M (c) R - M ÷ N (d) None

June 2019

Q10. Pointing to a woman in a picture, Sumit said, she is the mother of my son's wife's daughter. How is lady related to the Sumit?
(a) Uncle (b) Cousin (c) Daughter **(d) None**

Q11. Pointing to a man in a photograph, a man said "His mother's husband's sister is my aunt". Then what is relation between that man and him?
(a) Son (b) Uncle (c) Nephew **(d) Brother**

Q12. Pointing the old man Kailash said "his son is my son's uncle". How is Kailash is related to old man.
(a) Brother (b) Either son or son in law
(c) Son (d) Grand Father

Q13. Pointing in a photograph, Sonia said, His mother's only daughter is my mother How is Sonia relates to that man?
(a) Nephew (b) Sister (c) Wife (d) Niece

Nov 2019 [For questions 14-16]

A, B, C, D, E and F are members of a family. B is the son of A but A is not the mother of B, A & C are married couple. F is the brother of A. D is the sister of B, E is the son of C.

Q14. How many male members are there in the family.
(a) 1 (b) 2 (c) 3 **(d) 4**

Q15. How is F related to B?
(a) Uncle (b) Daughter (c) Son (d) Niece

Q16. How many children does A have?
(a) 3 (b) 2 (c) 4 (d) 1

Q17. Who is the mother of B?
(a) A **(b) C** (c) F (d) D

Nov 2020

Q18. Point out a Lady, Sohil said she is the daughter of woman. Who is the mother of the husband of my mother. Who is the lady to Sohil?
(a) Sister **(b) Aunt** (c) Daughter (d) Wife

Q19. Pointing towards a person, A man said to woman, "His mother is the only daughter of your father". How is the woman related to that person?
(a) Mother (b) Daughter (c) Sister (d) Wife

Q20. Vicky introduces John as the son of the only brother of his father's wife. How is Vicky related to John?
(a) Son **(b) Cousin** (c) Uncle (d) Brother

Q21. A Man said to a lady "your mother's husband's sister is my Aunt. "How is the man related to the lady?
(a) Father (b) Uncle (c) Son **(d) Brother**

Q22. Pointing to a lady, A said, "that women is my nephew's maternal grandmother". How is that women related to A's sister who has no sister?
(a) Cousin (b) Wife **(c) Mother** (d) Mother

Jan 2021

Q23. P is the brother of Q and R, S is the mother of R. T is the father of P, Which of the following statement cannot be definitely true?
(a) S is the mother of P (b) P is son of S
(c) T is husband of S **(d) Q is son of T**

Q24. Pointing to a lady in a photograph, Ram said "Her son's father is the son in law of my mother". How is Ram related to the lady?
(a) Aunt **(b) Cousin** (c) Sister (d) Mother

Q25. A girl Introduced, a boy as the son of the daughter of father of her uncle. The boy is girl's
(a) Son **(b) Brother** (c) Son-in-Law (d) Uncle

Q26. Pointing to a lady, Sahil said, "She is the daughter of the woman who is the mother of the husband of my mother". Who is the lady to Sahil?
(a) Aunt (b) Sister (c) Daughter (d) Mother

July 2021

Q27. Shyam's mother said to Shyam "My mother has a son whose son is Ram". Shyam is related to Ram as.
(a) Uncle **(b) Cousin**
(c) Nephew (d) Grandfather

Q28. Amit said "This girl is the wife of the grandson of my mother". How Amit related to the girl?
(a) Father-in law (b) Grandson
(c) Father (d) Son

Q29. A is the son C, C and Q are sister, Z is the mother of Q and P is the son of Z. Which is true?
(a) A and P are cousins (b) C and P are sisters
(c) P is the material uncle of A
(d) A is the material uncle of P

Q30. Pointing towards A, "B" said: your mother is the younger sister of my mother. "A" is related to "B" as __.
(a) Uncle **(b) Cousin** (c) Nephew (d) Father

Dec 2021

Q31. D is daughter of E. A is son of D. C is a brother of A & B is sister of A. F is the brother of D. How F is related to B?
(a) Father **(b) Uncle** (c) Brother (d) Mother

Q32. Introducing a boy a girl said, "He is the son of daughter of the father of my uncle". Who is the boy to the girl?
(a) Brother (b) Nephew (c) Uncle (d) Son

Q33. It is given that "A is the mother of B; B is the sister of C; C is the father of D". How is A related to D?
(a) Mother **(b) Grandmother** (c) Aunt (d) Sister

Q34. R told to M as, "the girl, I met at the beach, was the youngest daughter of the brother-in-law of my friend's mother". How is the girl related to R's friend?
(a) Cousin (b) Daughter (c) Niece (d) Aunt

Q35. P, Q, R, S, T, U are 6 members of a family in which there are two married couples. T, a teacher is married to a doctor who is mother of R and U. Q the lawyer is married to P. P has one son and one grandson. Of the two married ladies one is a housewife. There is also one student and one male engineer in the family. Which of the following is true about the granddaughter of the family?
(a) She is a lawyer (b) She is an engineer
(c) She is a student (d) She is a doctor

Q36. X and Y are brothers. R is the father of Y. S is the brother of T and maternal uncle of X. What is T to R?
(a) Mother **(b) Wife** (c) Sister (d) Brother

June 2022

Q37. Ravi is son of Aman's father's sister. Ram is son of Divya. Who is the mother of Gaurav and grandmother of Aman. Ashok is father of Tanya and grandfather of Ravi. Divya is wife of Ashok.
How is Ravi related to Divya?
(a) Nephew **(b) Grandson** (c) Son (d) None

Q38. P + Q means P is brother of Q, P - Q means P is the mother of Q. P x Q means P is the sister of Q. Which of the following means M is the maternal uncle of R?
(a) M + K + R (b) M - R + K
(c) M + K – R (d) M + K × R

Q39. A women going with a boy is asked by another women about the relationship between them. The women replied, "My maternal uncle and the uncle are his maternal uncle are same", the relationship between the lady & the boy is __.
(a) Maternal grandmother and grandson
(b) Mother and son (c) Father & son
(d) Paternal grandmother and grandson

Q40. If Kamal says, "Ravi's mother is the only daughter of my mother. How is Kamal related to Ravi?
(a) Father (b) Grandfather
(c) Son **(d) Maternal uncle**

Q41. A is B's sister. C is B's mother. D is C's father. E is D's mother. Then how A is related to D?
(a) Grandfather (b) Grandmother
(c) Daughter (d) Grand daughter

Q42. If A $ B means A is father of B. A # B means A is daughter of B. A @ B means A is sister of B. Then how is K related to M H @ K $ L # M
(a) Husband (b) Uncle (c) Father (d) Son

Dec 2022

Q43. Suresh's sister is the wife of Ram. Ram is Rani's brother. Ram's father is Madhur. Sheetal is Ram's grandmother. Rema is Sheetal's daughter -in-law. Rohit is Rani's brother's son. Who is Rohit to Suresh?
(a) Brother-in-law (b) Son
(c) Brother **(d) Nephew**

Q44. There are six children playing football namely A, B, C, D, E and F, A & E are brothers. F is sister of E, C is the only son of A's uncle. B & D are daughters of the brother of C's father. How D is related to A?
(a) Uncle (b) Cousin (c) Niece **(d) Sister**

Q45. In a joint family, there are father, mother, 3 married sons and one unmarried daughter. Out of the sons, two have 2 daughters each and one has a son only. How many female members are there in the family?
(a) 3 **(b) 6** (c) 9 (d) 5

Q46. When Rani saw Vinit, she recollected that "He is the brother of my grandfather's son". How is Rani related to Vinit?
(a) Aunt (b) Daughter (c) Sister **(d) Niece**

Q47. Annanya is mother of Satya and Shyam is the son of Bhima. Shiva is brother of Annanya. If Satya is sister of Shyam. How Bhima is related to Shiva?
(a) Son (b) Cousin
(c) Brother-in-law (d) Son-in-law

Q48. Suman is daughter-in-law of Rakesh and sister-in-law of Rajesh. Ramesh is the son of Rakesh and only brother of Rajesh. Find the relation of Suman with Ramesh?
(a) Sister-in-law (b) Cousin
(c) Aunt **(d) Wife**

Q49. Pointing to a man in the photograph. Khushi says, "This man's son's sister is my mother-in-law." Holw is the Khushi's husband related to the man in the photograph?
(a) Grandson (b) Son
(c) Son in law (d) Cousin

June 2023

Q50. There are 6 persons A, B, C, D and E. A and B are married and A is a male member. D is the only son of C who is the brother of A. E is the sister of D. B is the daughter in law of F. Whose husband has died. Who is the mother of C?
(a) A (b) E (c) D **(d) F**

Q51. P, Q, R, S, T, V are 6 members of a family is which there are 2 married couples. T a teacher is married to a doctor who is mother of R & U. Q, the lawyer is married to P. P has one son & one grandson. of 2 married ladies one is a housewife. There is also one students and one male, engineer in the family. Which is true about grandson of the family? He is __
(a) Lawyer **(b) Engineer** (c) Student (d) Doctor

Q52. Pointing to a photographer, a woman says" This man's son's sister is my mother-in-law". How is the women's husband related to the man is the photographer?
(a) Son (b) Brother **(c) Grandson** (d) None

Q53. If A is the brother of B, B is the daughter of C and D is the father of A. How is C related to S?
(a) Husband **(b) Wife** (c) Son (d) None

Q54. X is the husband of Y. W is a daughter of X. Z is a husband of W. N is a daughter of Z. What is the relationship of Y to N?
(a) Cousin (b) Niece
(c) Daughter **(d) Grandmother**

Q55. Based on the statements given below, find out who is the uncle of P?
(i) K and J are Brothers (ii) K's Sister is M
(iii) P & N are siblings (iv) N is the daughter of J
(a) K (b) J (c) N (d) M

Q56. Neelam who is Deepak's daughter, say to Deepika. 'Your mother-in-law Rekha is the younger daughter of Ramlal who is the grandfather. How Neelam is related to Deepika?
(a) Cousin (b) Niece **(c) Sister-in-law** (d) Aunt

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Ratio, Proportion, Indices & Logarithms

TO BUY HARDCOPY OF PYQs

SCAN ME

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Nov 2006

Q1. Two numbers are in the ratio 2:3 & the difference of their squares is 320. The numbers are:

(a) 12,18 **(b) 16,24** (c) 14,21 (d) None

Q2. If p:q is sub-duplicate ratio of $p - x^2$: $q - x^2$, then x^2 is :

(a) $\frac{p}{p+q}$ (b) $\frac{q}{p+q}$ (c) $\frac{qp}{p-q}$ **(d) None**

Q3. An alloy is to contain copper & zinc in the ratio 9:4. Zinc required to melt with 24 kg of copper is:

(a) $10\frac{2}{3}$ kg (b) $10\frac{1}{3}$ kg (c) $9\frac{2}{3}$ kg (d) 9 kg

Feb 2007

Q4. Two numbers are in ratio 7:8. If 3 is added to each of them, their ratio becomes 8:9. Numbers are:

(a) 14,16 (b) 24,27 **(c) 21,24** (d) 16,18

Q5. A box contains Rs. 56 in form of coins of 1 rupee, 50 paise & 25 paise. No. of 50 paise coin is double the no. of 25 paise coins & 4 times the no. of 1-rupee coins. The no. of 50 paise coins in the box is:

(a) 64 (b) 32 (c) 16 (d) 14

May 2007

Q6. 8 people are planning to share equally cost of a rental car. If 1 person withdraws from the arrangement & the others share equally entire cost of the car, then share of each of the remaining persons increased by:

(a) 1/9 (b) 1/8 **(c) 1/7** (d) 7/8

Q7. A bag contains Rs. 187 in the form of 1 rupee, 50 paise & 10 paise coins in the ratio 3:4:5. Find the number of each type of coins:

(a) 102,136,170 (b) 136,102,170 (c) 170, 102, 136 (d) None

Aug 2007

Q8. Ratio of earnings of A & B is 4:7. If the earnings of A increase by 50% & those of B decrease by 25%, the new ratio of their earning becomes 8:7. What is A's earning?

(a) Rs. 21,000 (b) Rs. 26,000 **(c) Rs. 28,000** (d) None

Q9. P, Q & R are three cities. Ratio of average temperature between P & Q is 11:12 & that between P & R is 9:8. Ratio between the average temperature of Q & R is:

(a) 22:27 **(b) 27:22** (c) 32:33 (d) None

Nov 2007

Q10. Rs. 407 are to be divided among A, B & C so that their shares are in the ratio $\frac{1}{4} : \frac{1}{5} : \frac{1}{6}$. Shares of A, B, C are:

(a) Rs. 165, Rs. 132, Rs. 110 (b) Rs. 165, Rs. 110, Rs. 132
(c) Rs. 132, Rs. 110, Rs. 165 (d) Rs. 110, Rs. 132, Rs. 165

Q11. The incomes of A & B are in the ratio 3 : 2 & their expenditures in the ratio 5 : 3. If each saves Rs. 1,500, then B's income is:

(a) 6,000 (b) 4,500 (c) 3,000 (d) 7,500

Feb 2008

Q12. In 40 litres mixture of glycerine & water, ratio of glycerine & water is 3:1. Quantity of water added in the mixture in order to make this ratio 2:1 is:

(a) 15 litres (b) 10 litres (c) 8 litres **(d) 5 litres**

Q13. Third proportional between $(a^2 - b^2)$ & $(a + b)^2$ is ___.

(a) $\frac{a+b}{a-b}$ (b) $\frac{a-b}{a+b}$ (c) $\frac{(a-b)^2}{a+b}$ **(d) $\frac{(a+b)^3}{a-b}$**

June 2008

Q14. In what ratio should tea worth Rs. 10 per kg be mixed with tea worth Rs. 14 per kg, so that the average price of the mixture may be Rs. 11 per kg?

(a) 2:1 **(b) 3:1** (c) 3:2 (d) 4:3

Q15. Ages of two persons are in the ratio 5:7. 18 years ago, their ages were in ratio of 8:13, their present ages are:

(a) 50, 70 (b) 70, 50 (c) 40,56 (d) None

Q16. If A, B & C started a business by investing Rs. 1,26,000, Rs. 84,000 & Rs. 2,10,000. If at the end of the year profit is Rs. 2,42,000 then share of each is:

(a) 72,600, 48,400, 1,21,000 (b) 48,400, 1,21,000, 72,600
(c) 72,000, 49,000, 1,21,000 (d) 48,000, 1,21,400, 72,600

June 2009

Q17. If $\frac{p}{q} = -\frac{2}{3}$ then the value of $\frac{2p+q}{2p-q}$ is:

(a) 1 (b) -1/7 **(c) 1/7** (d) 7

Q18. Fourth proportional to x, 2x, (x+1) is:

(a) (x+2) (b) (x-2) **(c) (2x+2)** (d) (2x-2)

June 2010

Q19. What must be added to each term of ratio 49: 68, so that it becomes 3:4?

(a) 3 (b) 5 **(c) 8** (d) 9

Q20. The students of two classes are in the ratio 5:7, if 10 students left from each class, the remaining students are in the ratio of 4:6 then the number of students in each class is:

(a) 30, 40 (b) 25, 24 (c) 40, 60 **(d) 50,70**

Dec 2010

Q21. If A : B = 2:5, then (10A + 3B):(5A + 2B) is equal to:

(a) 7:4 (b) 7:3 (c) 6:5 (d) 7:9

June 2011

Q22. In a film shooting, A & B received money in a certain ratio & B & C also received the money in the same ratio. If A gets Rs. 1,60,000 & C gets Rs. 2,50,000. Find the amount received by B?

(a) 2 Lacs (b) 2.5 Lacs (c) 1 Lac (d) 1.5 Lac

Dec 2011

Q23. Ratio compounded of 4:5 & sub-duplicate of a:9 is 8:15. Then Value of 'a' is:

(a) 2 (b) 3 **(c) 4** (d) 5

Q24. If X Varies inversely as square of Y & given that Y = 2 for X = 1, then Value of X for Y = 6 will be:

(a) 3 (b) 9 (c) 1/3 **(d) 1/9**

June 2012

Q25. Which numbers are not in proportion?

(a) 6, 8, 5, 7 (b) 7, 14, 6, 12 (c) 18, 27, 12, 18 (d) All

Dec 2012

Q26. Find two numbers such that mean proportional between them is 18 & third proportional b/w them is 144.

(a) 9, 36 (b) 8, 32 (c) 7, 28 (d) 6, 24

June 2013

Q27. Mean proportional between 24 & 54 is:

(a) 33 (b) 34 **(c) 35** (d) 36

Q28. The triplicate ratio of 4:5 is:

(a) 125:64 (b) 16:25 (c) 64:125 **(d) 120:46**

Dec 2013

Q29. Find three numbers in the ratio 1:2:3, so that the sum of their squares is equal to 504.

(a) 6, 12,18 (b) 3,6, 9 (c) 4, 8, 12 (d) 5,10,15

Q30. Divide 80 into two parts such that their product is maximum, then the numbers are:

(a) 25,55 (b) 35,45 **(c) 40,40** (d) 15,65

Q31. If salary of P is 25% lower than Q & salary of R is 20% higher than that of Q, ratio of the salary of R & P will be:

(a) 5:8 **(b) 8:5** (c) 5:3 (d) 3:5

June 2014

Q32. If x:y = 2:3, then (5x+2y):(3x-y) = ?

(a) 19:3 **(b) 16:3** (c) 7:2 (d) 7:3

Q33. A person has assets worth Rs. 1,48,200. He wish to divide it amongst his wife, son & daughter in the ratio 3:2:1 respectively. From this asset, the share of his son will be:

(a) 24,700 **(b) 49,400** (c) 74,100 (d) 37,050

Dec 2014

Q34. For three months, salary of a person is in the ratio 2: 4:5. If the difference between the product of salaries of the first two months & last two months is Rs. 4,80,00,000; then the salary of the person for the second month will be:

(a) 4,000 (b) 6,000 **(c) 8,000** (d) 12,000

June 2015

Q35. A dealer mixes rice costing Rs. 13.84 per Kg. with rice costing Rs. 15.54 & sells mixture at Rs. 17.60 per Kg. So, he earns a profit of 14.6% on his sale price. The proportion in which he mixes the two qualities of rice is:

(a) 3:7 (b) 5:7 (c) 7:9 (d) 9:11

Q36. $2p^2 - q^2 = 7pq$. Find p:q.

(a) 5:6 (b) 5:7 (c) 3:5 (d) 3:7

Dec 2015

Q37. Ratio of third proportion of 12,30 to the mean proportion of 9, 25 is:

(a) 2:1 **(b) 5:1** (c) 7:15 (d) 3:5

Q38. What number must be added to each number 10,18, 22, 38 to make the numbers in proportion?

(a) 2 (b) 4 (c) 8 (d) None

June 2016

Q39. X, Y, Z together starts a business. If X invests 3 times as much as Y invests & Y invests two third of what Z invests, then the ratio of capitals of X, Y, Z is:

(a) 3:9:2 (b) 6:3:2 (c) 3:6:2 **(d) 6:2:3**

Dec 2016

Q40. There are total 23 coins of Rs. 1, Rs. 2 & Rs. 5 in a bag. If their value is Rs. 43 & the ratio of coins of Rs. 1 & Rs. 2 is 3:2. Then number of coins of Rs. 1 is:

(a) 12 (b) 5 (c) 10 (d) 14

June 2017

Q41. If a:b = 2:3, b:c = 4:5 & c: d = 6 : 7, then a:d is:

(a) 24:35 (b) 8 :15 **(c) 16:35** (d) 7:15

Dec 2017

Q42. Ratio of the number of ₹5 coins & ₹10 coins is 8: 15. If value of ₹5 coins is ₹360, then number of ₹10 coins will be:

(a) 72 (b) 120 **(c) 135** (d) 185

Q43. If $\frac{1}{2}, \frac{1}{3}, \frac{1}{5}$ & $\frac{1}{x}$ are in proportion, then 'x' will be:

(a) 15/2 (b) 6/5 (c) 10/3 (d) 5/6

June 2018

Q44. Mean proportional between 24 & 54 is:
(a) 33 (b) 34 (c) 35 **(d) 36**

Q45. If (a+b) : (b+c) : (c+a) = 7: 8: 9. Find a: b: c.
(a) 5:4:3 (b) 3:4:5 **(c) 4:3:5** (d) 4:5:3

Q46. If p:q is sub-duplicate ratio of $p - x^2$: $q - x^2$, then x^2 is :
(a) $\frac{p}{p+q}$ (b) $\frac{q}{p+q}$ (c) $\frac{qp}{p-q}$ **(d) None**

Dec 2018

Q47. $\frac{3x-2}{5x+6}$ is the duplicate ratio of $\frac{2}{3}$ then x=__
(a) 2 **(b) 6** (c) 5 (d) 9

Q48. If $x: y: z = 7: 4: 11$ then $\frac{x+y+z}{z}$ is
(a) 2 (b) 3 (c) 4 (d) 5

June 2019

Q49. If the ratio of two numbers is 7: 11. If 7 is added to each number then the new ratio will be 2: 3 then the numbers are.
(a) 49,77 (b) 42,45 (c) 43,42 (d) 39,40

Dec 2019

Q50. The ratio of two numbers are 3: 4. The difference of their squares is 28. The greater no. is:
(a) 8 (b) 12 (c) 24 (d) 64

Q51. The price of scooter & moped are in the ratio 7: 9. The price of moped is ₹1,600 more than that of scooter. Then the price of moped is:
(a) ₹ 7,200 (b) ₹ 5,600 (c) ₹ 800 (d) ₹ 700

Nov 2020

Q52. If $a: b = 3: 7$, then $3a + 2b: 4a + 5b = ?$
(a) 23: 47 (b) 27: 43 (c) 24: 51 (d) 29: 53

Q53. If $a: b = 9: 4$, then $\sqrt{\frac{a}{b}} + \sqrt{\frac{b}{a}} = ?$
(a) 3/2 (b) 2/3 (c) 6/13 **(d) 13/6**

Q54. The ratio of number of boys & the number of girls in a school is found to be 15: 32. How many boys & equal number of girls should be added to bring the ratio to 2/3?
(a) 19 (b) 20 (c) 23 (d) 27

Jan 2021

Q55. In a business A & B received profit in a certain ratio B & C received profits in the same ratio. If A gets ₹1600 & C gets ₹2500 then how much does B get?
(a) ₹2,000 (b) ₹2,500 (c) ₹1,000 (d) ₹1,500

Q56. Ratio of two quantities is 15: 17. If consequent of its inverse ratio is 15, then antecedent is;
(a) 15 (b) $\sqrt{15}$ **(c) 17** (d) 14

June 2021

Q57. The salaries of A, B & C are in the ratio 2: 3: 5. If increments of 15%, 10% & 20% are allowed respectively to their salary, then what will be the new ratio of their salaries?
(a) 3: 3: 10 (b) 10: 11: 20
(c) 23: 33: 60 (d) Cannot be determined

Q58. If $A: B = 5: 3, B: C = 6: 7$ & $C: D = 14: 9$ then A:B:C:D is:
(a) 20: 14: 12: 9 (b) 20: 9: 12: 14
(c) 20: 9: 14: 12 **(d) 20: 12: 14: 9**

Q59. A vessel contained a solution of acid & water in which water was 64%. Four litres of the solution were taken out of the vessel & the same quantity of water was added. If the resulting solution contains 30% acid, the quantity (in litres) of the solution, in the beginning in the vessel, was
(a) 12 (b) 36 **(c) 24** (d) 2

Dec 2021

Q60. Incomes of R & S are in ratio 7: 9 & their expenses are in ratio 4: 5. Their total expenditure is equal to income of R. What is the ratio of their savings?
(a) 23: 36 (b) 28: 41 (c) 31: 43 **(d) 35: 46**

Q61. A bag contains 105 coins containing some 50 paise, & 25 paise coins. The ratio of the number of these coins is 4: 3. The total value (in ₹) in the bag is
(a) 43.25 **(b) 41.25** (c) 39.25 (d) 35.25

Q62. In a department, number of males & females are in the ratio 3:2. If 2 males & 5 females join the department, then ratio becomes 1:1. Initially, no. of females in department is
(a) 9 **(b) 6** (c) 3 (d) 8

June 2022

Q63. A box contains 25 paise coins & 10 paise coins & 5 paise coins in ratios 3:2:1 & total money is ₹40. How many 5 paise coins are there?
(a) 65 (b) 55 **(c) 40** (d) 50

Q64. If x:y = 4:6 & z:x = 4:16. Find y ?
(a) 4 **(b) 6** (c) 16 (d) 1

Dec 2022

Q65. A sum is to be distributed among A, B, C, D in ratio of 5:2:4:3. If C gets ₹1,000 more than D, what is B 's share?
(a) 2,000 (b) 1,500 (c) 2,500 (d) 1,000

Feb 2007

Q1. $(a^{1/8} + a^{-1/8})(a^{1/8} - a^{-1/8})(a^{1/4} + a^{-1/4})(a^{1/2} + a^{-1/2})$ is:

(a) $a + \frac{1}{a}$ **(b) $a - \frac{1}{a}$** (c) $a^2 + \frac{1}{a^2}$ (d) $a^2 - \frac{1}{a^2}$

May 2007

Q2. Simplification of $\frac{x^{m+3n} \cdot x^{4m-9n}}{x^{6m-6n}}$ is:

(a) x^m **(b) x^{-m}** (c) x^n (d) x^{-n}

Aug 2007

Q3. $\frac{1}{1+Z^{a-b}+Z^{a-c}} + \frac{1}{1+Z^{b-c}+Z^{b-a}} + \frac{1}{1+Z^{c-a}+Z^{c-b}} =$ ___

(a) $\frac{1}{Z^{2(a+b+c)}}$ (b) $\frac{1}{Z^{(a+b+c)}}$ **(c) 1** (d) 0

Nov 2007

Q4. If $4^X = 5^y = 20^z$ then z = ___.

(a) xy (b) $\frac{x+y}{xy}$ (c) $\frac{1}{xy}$ **(d) $\frac{xy}{x+y}$**

Q5. $\left(\frac{\sqrt{3}}{9}\right)^{5/2} \left(\frac{9}{3\sqrt{3}}\right)^{7/2} \times 9 =$ ___.

(a) 1 (b) $\sqrt{3}$ (c) $3\sqrt{3}$ (d) $\frac{3}{9\sqrt{3}}$

Feb 2008

Q6. If $2^x - 2^{x-1} = 4$ then $x^x =$ ___.

(a) 7 (b) 3 **(c) 27** (d) 9

June 2008

Q7. If $x = y^a$, $y = z^b$ and $z = x^c$ then abc = ___.

(a) 2 **(b) 1** (c) 3 (d) 4

June 2009

Q8. If $x = 3^{1/3} + 3^{-1/3}$ then $3x^3 - 9x =$ ___.

(a) 3 (b) 9 (c) 12 **(d) 10**

Q9. Find the value of: $[1 - \{1 - (1 - x^2)^{-1}\}^{-1}]^{-1/2}$

(a) 1/x **(b) x** (c) 1 (d) None

Dec 2009

Q10. If $2^x \times 3^y \times 5^Z = 360$. Then what is value of x, y, z.?

(a) 3,2,1 (b) 1,2,3 (c) 2,3,1 (d) 1,3,2

Q11. $\frac{2^n + 2^{n-1}}{2^{n+1} - 2^n}$

(a) 1/2 **(b) 3/2** (c) 2/3 (d) 1/3

June 2010

Q12. If $2^x - 2^{x-1} = 4$ then x^x is equal to:

(a) 7 (b) 3 **(c) 27** (d) 9

Dec 2010

Q13. Recurring decimal 2.7777..... can be expressed as:

(a) 24/9 (b) 22/9 (c) 26/9 **(d) 25/9**

June 2012

Q14. Value of $\frac{(3^{n+1} + 3^n)}{(3^{n+3} - 3^{n+1})}$ is equal to:

(a) 1/5 **(b) 1/6** (c) 1/4 (d) 1/9

Dec 2012

Q15. Find the value of x, if $x.(x)^{1/3} = (x^{1/3})^x$

(a) 3 **(b) 4** (c) 2 (d) 6

Dec 2013

Q16. If $\sqrt[3]{a} + \sqrt[3]{b} + \sqrt[3]{c} = 0 = 0$, then the value of $\left(\frac{a+b+c}{3}\right)^3$

(a) abc (b) 9abc (c) $\frac{1}{abc}$ (d) $\frac{1}{9abc}$

June 2014

Q17. If $(25)^{150} = (25x)^{50}$; then x =?

(a) 5^3 **(b) 5^4** (c) 5^2 (d) 5

Q18. $\left(\frac{y^a}{y^b}\right)^{a^2+ab+b^2} \times \left(\frac{y^b}{y^c}\right)^{b^2+bc+c^2} \times \left(\frac{y^c}{y^a}\right)^{c^2+ac+a2} =$ ___.

(a) y (b) -1 **(c) 1** (d) None

June 2015

Q19. If $p^x = q$, $q^y = r$ & $r^2 = p^6$, then xyz = ___.

(a) 0 (b) 1 (c) 3 **(d) 6**

Q20. If $2^{x+y} = 2^{2x-y} = \sqrt{8}$, then respective values of X & Y are

(a) 1, $\frac{1}{2}$ (b) $\frac{1}{2}$,1 (c) $\frac{1}{2}$, $\frac{1}{2}$ (d) None

Dec 2015 [Same as Q11. Dec 2009]

Q21. Value of $\frac{2^n + 2^{n-1}}{2^{n+1} - 2^n} =$

(a) 1/2 **(b) 3/2** (c) 2/3 (d) 1/3

June 2016

Q22. $\left[\frac{x^2 - (y-z)^2}{(x+z)^2 - y^2} + \frac{y^2 - (x-z)^2}{(x+y)^2 - z^2} + \frac{z^2 - (x-y)^2}{(y+z)^2 - x^2}\right] =$

(a) 0 **(b) 1** (c) -1 (d)2

Q23. If $3^X = 5^y = 75^z$, then

(a) x + y - z = 0 (b) $\frac{2}{x} + \frac{1}{y} = \frac{1}{z}$

(c) $\frac{1}{x} + \frac{2}{y} = \frac{1}{z}$ (d) $\frac{2}{x} + \frac{1}{z} = \frac{1}{y}$

Dec 2016

Q24. If abc = 2, then $\frac{1}{1+a+2b^{-1}} + \frac{1}{1+\frac{1}{2}b+c^{-1}} + \frac{1}{1+c+a^{-1}}$ is:

(a) 1 (b) 2 (c) 3 (d) 1/2

June 2017

Q25. If $a = \frac{\sqrt{6}+\sqrt{5}}{\sqrt{6}-\sqrt{5}}$ and $b = \frac{\sqrt{6}-\sqrt{5}}{\sqrt{6}+\sqrt{5}}$ then the value of $\frac{1}{a^2} + \frac{1}{b^2} =$

(a) 480 **(b) 482** (c) 484 (d) 486

Dec 2017

Q26. If $u^{5x} = v^{5y} = w^{5z}$ & $u^2 = vw$, then $xy + xz - 2yz =$ __.

(a) 5 (b) 2 (c) 1 **(d) 0**

June 2018

Q27. $\frac{2^n + 2^{n-1}}{2^{n+1} - 2^n} =$

(a) 1/2 **(b) 3/2** (c) 2/3 (d) 1/3

Dec 2018

Q28. $\frac{2^{m+1} \times 3^{2m-n+3} \times 5^{n+m+4} \times 6^{2n+m}}{6^{2m+n} \times 10^{n+1} \times 15^{m+3}}$

(a) 3^{2m-2n} (b) 3^{2n-2m} **(c) 1** (d) None

June 2019

Q29. If $2^{x^2} = 3^{y^2} = 12^{2^2}$ then

(a) $\frac{1}{x^2} + \frac{1}{y^2} = \frac{1}{z^2}$ (b) $\frac{1}{x^2} + \frac{2}{y^2} = \frac{1}{z^2}$

(c) $\frac{2}{x^2} + \frac{1}{y^2} = \frac{1}{z^2}$ (d) None

Q30. If $P = x^{1/3} + x^{-1/3}$ then $P^3 - 3P =$

(a) 3 (b) $\frac{1}{2}\left(x + \frac{1}{x}\right)$

(c) $\left(x + \frac{1}{x}\right)$ (d) $2\left(x + \frac{1}{x}\right)$

Dec 2019

Q31. Value of $\left[9^{n+\frac{1}{4}} \cdot \frac{\sqrt{3.3^n}}{3.\sqrt{3^{-n}}}\right]^{\frac{1}{n}}$

(a) 9 **(b) 27** (c) 81 (d) 3

Q32. If $x = \sqrt{3} + \frac{1}{\sqrt{3}}$, then $\left(x - \frac{\sqrt{126}}{\sqrt{42}}\right)\left(x - \frac{1}{x - \frac{2\sqrt{3}}{3}}\right)$

(a) 5/6 (b) 6/5 (c) 2/3 (d) -3/5

Dec 2020

Q33. Find 'a' if $(\sqrt{9})^{-5} \times (\sqrt{3})^{-7} = (\sqrt{3})^{-a}$

(a) 11 (b) 13 (c) 15 **(d) 17**

Jan 2021

Q34. Find the value of $\frac{3.\ t^{-1}}{t^{-\left(\frac{1}{3}\right)}}$

(a) $\frac{3}{t^{\frac{2}{3}}}$ (b) $\frac{3}{t^{\frac{3}{2}}}$ (c) $\frac{3}{t^{\frac{1}{3}}}$ (d) $\frac{3}{t^2}$

July 2021

Q35. If $xy + yz + zx = -1$, then $\frac{x+y}{1+xy} + \frac{y+z}{1+yz} + \frac{z+x}{1+zx}$

(a) xyz (b) $\frac{-1+y}{yz}$ (c) $\frac{1}{x+y+z}$ **(d)** $\frac{1}{xyz}$

Dec 2021

Q36. The value of $\frac{6^{n+4} + 3^{n+3} \times 2^{n+3}}{5 \times 6^n + 6^n}$ is:

(a) 232 (b) 242 **(c) 252** (d) 262

Q37. If $\left(\frac{3a}{2b}\right)^{2x-4} = \left(\frac{2b}{3a}\right)^{2x-4}$, then the value of x is

(a) 8 (b) 6 (c) 4 **(d) 2**

Q38. The value of $\left(1 - \sqrt[3]{0.027}\left(\frac{5}{6}\right)\left(\frac{1}{2}\right)^2\right)$ is:

(a) 11/16 (b) 13/16 **(c) 15/16** (d) 1

Q39. If $a = \frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$ and $b = \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$ then value of $a^2 + b^2 =$

(a) 64 **(b) 62** (c) 60 (d) 254

June 2022

Q40. If $(\sqrt{9})^{-8} \times (\sqrt{3})^{-5} = 3^z$. Find z.

(a) 2/21 **(b) -21/2** (c) 21/2 (d) -2/21

Q41. Find the value of $\frac{3.\ t^{-1}}{t^{-\left(\frac{1}{3}\right)}}$

(a) $\frac{3}{t^{\frac{2}{3}}}$ (b) $\frac{3}{t^{\frac{3}{2}}}$ (c) $\frac{3}{t^{\frac{1}{3}}}$ (d) $\frac{3}{t^2}$

Dec 2022

Q42. Simplify $(2a^3b^4)^5/(4a^3b)^2 \times (a^2b^2)$

(a) $4a^2b^3$ (b) $4a^6b^4$ (c) $4a^{10}b^{10}$ **(d)** $\mathbf{4a^{10}b^{20}}$

Q43. If $\sqrt[3]{a} + \sqrt[3]{b} + \sqrt[3]{c} = 0$ then the value of $\left(\frac{a+b+c}{3}\right)^3 =$

(a) abc (b) 9abc (c) 1/abc (d) 1/9abc

June 2023

Q44. If $x = y^a, y = z^b, z = x^c$ then the value of abc is

(a) 1 (b) 2 (c) 3 (d) 4

Nov 2006

Q1. $7\log\left(\frac{16}{15}\right) + 5\log\left(\frac{25}{24}\right) + 3\log\left(\frac{81}{80}\right)$ | is equal to:

(a) 0 (b) 1 **(c) log 2** (d) log 3

Feb 2007

Q2. Value of expression: $a^{\log_a b.\log_b^c.\log_c^d.\log_d t}$

(a) t (b) abcdt (c) 0 (d) Log t

Q3. If $\log 10000\ x = \frac{-1}{4}$, then x is given by:

(a) 1/100 **(b) 1/10** (c) 1/20 (d) None

May 2007

Q4. If log (2a - 3b) = log a - log b, then a=?

(a) $\frac{3b^2}{2b-1}$ (b) $\frac{3b}{2b-1}$ (c) $\frac{b^2}{2b+1}$ **(d) $\frac{3b^2}{2b+1}$**

Aug 2007

Q5. $\frac{1}{\log_{ab}(abc)} + \frac{1}{\log_{bc}(abc)} + \frac{1}{\log_{ca}(abc)} = ?$

(a) 0 (b) 1 **(c) 2** (d) -1

Q6. Number of digits in for 2^{64}. [Given log 2 = 0.30103]:

(a) 18 (b) 19 **(c) 20** (d) 21

Nov 2007

Q7. The value $\frac{\log_3 8}{\log_9 16.\log_4 10}$ is:

(a) $3\log_{10}2$ (b) $7\log_{10}3$

(c) $3\log_e z$ (d) None.

Feb 2008

Q8. If $x = \frac{e^n - e^{-n}}{e^n + e^{-n}}$, then the value of n is:

(a) $\frac{1}{2}\log_e\frac{1+x}{1-x}$ (b) $\log_e\frac{1+x}{1-x}$

(c) $\log_e\frac{1-x}{1+x}$ (d) $\log_e\frac{1-x}{1+x}$

Feb 2008

Q9. log 144 is equal to:

(a) 2 log 4 + 2 log 2 **(b) 4 log 2 + 2 log 3**

(c) 3 log 2+ 4 log 3 (d) 3 log 2 - 4 log 3

June 2008

Q10. If $\log_2[\log_3(\log_2 x)] = 1$, then x equals:

(a) 128 (b) 256 **(c) 512** (d) None.

Q11. If $\log\left(\frac{a+b}{4}\right) = \frac{1}{2}(\log a + \log b)$ then: $\frac{a}{b} + \frac{b}{a}$

(a) 12 **(b) 14** (c) 16 (d) 8

Q12. log (m + n) = log m + log n, m =

(a) $\frac{n}{n-1}$ (b) $\frac{n}{n+1}$ (c) $\frac{n+1}{n}$ (d) $\frac{n+1}{n-1}$

June 2009

Q13. $\log_4(x^2 + x) - \log_4(x+1) = 2$. Find x

(a) 16 (b) 0 (c) – 1 (d) None

Dec 2009

Q14. Find the value of $[\log_{10}\sqrt{25} - \log_{10}(2^3) + \log_{10}(4)^2]^x$

(a) x (b) 10 **(c) 1** (d) None.

June 2010

Q15. If $\log_a b + \log_a c = 0$ then

(a) b = c (b) b = -c

(c) b = c = 1 **(d) b and c are reciprocals.**

Dec 2010

Q16. $2\log x + 2\log x^2 + 2\log x^3 + \text{----} + 2\log x^n =$

(a) $\frac{n(n+1)\log x}{2}$ **(b) n(n+1).logx**

(c) $n^2 \log x$ (d) None of these.

Q17. Solve: $\left(\frac{\log_x 10 - 3}{2}\right) + \left(\frac{11 - \log_x 10}{3}\right) = 2$

(a) 10^{-1} (b) 10^2 (c) 10 (d) 10^3

June 2011

Q18. If n = m! where ('m' is a positive integer > 2) then the value of: $\frac{1}{\log_2^n} + \frac{1}{\log_3^n} + \frac{1}{\log_4^n} + \cdots\ \ldots\ \ldots + \frac{1}{\log_m^n}$

(a) 1 (b) 0 (c) -1 (d) 2

Dec 2011

Q19. If $\log_2 x + \log_4 x = 6$, then Value of x is:

(a) 16 (b) 32 (c) 64 (d) 128

June 2012

Q20. If $\log_x y = 100$ & $\log_2 x = 10$, then y=___

(a) 2^{10} (b) 2^{100} **(c) $2^{1,000}$** (d) $2^{10,000}$

Dec 2012

Q21. Which is true if $\frac{1}{ab} + \frac{1}{bc} + \frac{1}{ca} = \frac{1}{abc}$

(a) log (ab + bc + ca) = abc (b) $\log\left(\frac{1}{a} + \frac{1}{b} + \frac{1}{c}\right) = abc$

(c) log (abc) = 0 **(d) log (a + b + c) = 0**

June 2013

Q22. For what value of x, equation $\left(\log_{\sqrt{x}}2\right)^2 = \log_{x^2}$ is true?

(a) 16 (b) 32 (c) 8 (d) 4

Dec 2013

Q23. The value of $\log_4 9 . \log_3 2$ is:

(a) 3 (b) 9 (c) 2 **(d) 1**

Q24. The value of $(\log_y x . \log_2 y . \log_x z)^3$ is

(a) 0 (b) -1 **(c) 1** (d) 3

June 2014

Q25. If $x^2 + y^2 = 7xy$, then $\log \frac{1}{3}(x+y)$ = ___.

(a) (log x+log y) **(b) $\frac{1}{2}$ (log x + log y)**

(c) $\frac{1}{3}$ (log x / log y) (d) $\frac{1}{3}$ (log x + log y)

Q26. If $x = \log_{24}12$, $y = \log_{36}24$ & $z = \log_{48}36$, then xyz + 1 = ____

(a) 2xy (b) 2xz **(c) 2yz** (d) 2

Dec 2014

Q27. If log x = a + b, log y = a - b then $\log \frac{10x}{y^2}$ = ___.

(a) 1 - a + 3b (b) a -1 + 3b

(c) a + 3b + 1 (d) 1 - b + 3a

Q28. If $x = 1 + \log_p qr$, $y = 1 + \log_q rp$ and $z = 1 + \log_r pq$ then the value of $\frac{1}{x}+\frac{1}{y}+\frac{1}{z}$ = _____.

(a) 0 **(b) 1** (c) -1 (d) 3

June 2015

Q29. If log x = m + n & log y = m - n, then $\log (10x/y^2)$=

(a) 3n - m + 1 (b) 3m - n + 1

(c) 3n + n + 1 (d) 3m + n + 1

Dec 2015

Q30. The value of $\log_3 5 \times \log_5 4 \times \log_2 3$.

(a) 0 **(b) 1** (c) 2 (d) $\frac{1}{2}$

June 2016

Q31. The integral part of a logarithm is called ___ & the decimal part of a logarithm is called ____.

(a) Mantissa, Characteristic **(b) Characteristic, Mantissa**

(c) Whole, Decimal (d) None of these.

Q32. If $\log_4(x^2 + x) - \log_4(x + 1) = 2$, then the value of X is:

(a) 2 (b) 3 **(c) 16** (d) 8

Q33. Value of $\frac{1}{\log_3^{60}} + -\frac{1}{\log_4^{60}} + \frac{1}{\log_5^{60}}$ is:

(a) 0 **(b) 1** (c) 5 (d) 60

Dec 2016

Q34. If log 2 - 0.3010 and log 3 = 0.4771, then the value of log 24 is:

(a) 1.0791 (b) 1.7323 **(c) 1.3801** (d) 1.8301

June 2017

Q35. The value of $\log (1^3 + 2^3 + 3^3 + \ldots\ldots n^3)$ is equal to:

(a) 3 log 1 + 3 log 2 + ... + 3 log n

(b) 2 log n + 2 log (n+1) - 2 log 2

(c) log n + log (n+1) + log (2n+1) - log 6

(d) 1

Dec 2017

Q36. If $\log_3 [\log_4 (\log_x x)] = 0$, then the value of 'x' will be:

(a) 4 (b) 8 **(c) 16** (d) 32

Dec 2017

Q37. If $\log \left(\frac{x-y}{2}\right) = \frac{1}{2}(\log x + \log y)$, then $x^2 + y^2$ =_____.

(a) 2xy (b) 4xy (c) $2x^2y^2$ **(d) 6xy**

June 2017

Q38. The value of the expression: $a^{\log_a b \cdot \log_b^c \cdot \log_c^d \cdot \log_d t}$

(a) t (b) abcdt

(c) (a + b + c + d + t) (d) None

June 2018

Q39. If $\log_x \sqrt[3]{2} = 1/15$

(a) 3 (b) 2 (c) 9 **(d) 1**

Dec 2018

Q40. $\log_2 \log_2 \log_2 16 = ?$

(a) 0 (b) 3 **(c) 1** (d) 2

June 2019

Q41. The value of

$$\log_5\left(1+\frac{1}{5}\right) + \log_5\left(1+\frac{1}{6}\right) + - - - + \log_5\left(1+\frac{1}{624}\right)$$

(a) 2 **(b) 3** (c) 5 (d) 0

Q42. $\log_{2\sqrt{2}}(512):\log_{3\sqrt{2}} 324 =$

(a) 128: 81 (b) 2: 3 **(c) 3: 2** (d) None

Dec 2019

Q43. $\log_{0.01} 10{,}000 = ?$

(a) 2 **(b) -2** (c) 4 (d) -4

Q44. $\text{Log}xy^2 - \log y = \log(x+y)$, find y in terms of x

(a) x-1 (b) $\frac{x}{1+x}$ **(c)** $\frac{x}{x-1}$ (d) x+1

Dec 2020

Q45. if $\log_a \sqrt{3} = 1/6$, find the value of 'a':

(a) 9 (b) 81 **(c) 27** (d) 3

Q46. $\log 9 + \log 5$ is expressed as:

(a) log 4 (b) log 9/5 (c) log 5/9 **(d) log 45**

Jan 2021

47. If $\log_a(ab) = x$, then $\log_b(ab)$ is

(a) 1/x (b) $\frac{x}{1+x}$ **(c)** $\frac{x}{x-1}$ (d) None

June 2021

Q48. If $\log_4 x + \log_{16} x + \log_{64} x + \log_{256} x = \frac{25}{6}$ then the value of x is

(a) 64 (b) 4 **(c) 16** (d) 2

Dec 2021

Q49. If $\log_{10} 3 = x$ and $\log_{10} 4 = y$, then the value of $\log_{10} 120$ can be expressed as

(a) $x - y + 1$ **(b)** $\mathbf{x + y + 1}$ (c) $x + y - 1$ (d) None

Q50. Find the value of $\log(x^6)$, if $\log(x) + 2\log(x^2) + 3\log(x^3) = 14$

(a) 3 (b) 4 (c) 5 **(d) 6**

June 2022

Q51. $\log\left(\frac{p^2}{qr}\right) + \log\left(\frac{q^2}{pr}\right) + \log\left(\frac{r^2}{pq}\right)$ is:

(a) pqr **(b) 0** (c) 1 (d) None

Q52. If $\log_a \sqrt{3} = 1/6$, then 'a' will be:

(a) 27 (b) 36 (c) 15 (d) 1

Q53. $\log_{\sqrt{2}} 64$ is equal to:

(a) 12 (b) 6 (c) 1 (d) 8

Dec 2022

Q54. If $\log_{10} 2 = y$ and $\log_{10} 3 = x$, then the value of $\log_{10} 15$ is:

(a) $x - y + 1$ (b) $x + y + 1$

(c) $x - y - 1$ **(d)** $\mathbf{y - x + 1}$

Q55. $\log_3 {}^4 \cdot \log_4 {}^5 \cdot \log_5 6 \cdot \log_6 {}^7 \cdot \log_7 {}^8 \cdot \log_8 {}^9$ equal to:

(a) 3 **(b) 2** (c) 1 (d) 0

June 2023

Q56. The Value of $\{\log_6 \{3\log_{10} 100\}\}$

(a) 1 (b) 2 (c) 10 (d) 100

Q57. Given that $\log_{10} x = m + n - 1$ & $\log_{10} y = m - n$, value of $\log_{10}\left(\frac{100x}{y^2}\right)$ expressed in terms of m & n is:

(a) $\mathbf{1 - m + 3n}$ (b) $m - 1 + 3n$

(c) $m + 3n + 1$ (d) $m^2 - n^2$

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Equations

TO BUY HARDCOPY
OF PYQs

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Nov 2006

Q1. On solving $\sqrt{\frac{x}{1-x}}+\sqrt{\frac{1-x}{x}}=2\frac{1}{6}$, we get one value of x as:

(a) 4/13 (b) 1/13 (c) 2/13 (d) 3/13

Q2. Find positive value of k for which equations: $x^2+kx+64=0$ & $x^2-8x+k=0$ will have real roots:

(a) 12 **(b) 16** (c) 18 (d) 22.

Q3. Equation of the straight line through the point of intersection of x + 2y - 5 = 0 and x - 3y - 7 = 0 and passing through the point (1,0) is:

(a) x + 12y = 1 (b) x -12y = 1 (c) x - 12y= 11 (d) None

Feb 2007

Q4. A man sells 6 radios and 4 televisions for Rs. 18,480. If 14 radios and 2 televisions are sold for the same amount, what is the price of a television?

(a) 1,848 (b) 840 (c) 1,680 **(d) 3,360**

Q5. If one root of equation is $2+\sqrt{5}$, then equation is:

(a) $x^2 + 4x - 1 = 0$ **(b) $x^2 - 4x - 1 = 0$**

(c) $x^2 + 4x + 1 - 0$ (d) $x^2 - 4x + 1 = 0$

~~**Q6.** The equation of a line which is perpendicular to 5x - 2y = 7 and passes through the mid-point of the line joining (2, 7) and (-4,1) is:~~

~~(a) 2x - 5y -18 = 0~~ ~~(b) 2x + 5y + 18 = 0~~

~~**(c) 2x + 5y -18 = 0**~~ ~~(d) None of these.~~

Q7. A man starts his job with a certain monthly salary and earns a fixed increment every year. If his salary was Rs. 1,500 after 4 years of service and Rs. 1,800 after 10 years of service, what was his starting salary and what is the annual increment in rupees?

(a) Rs. 1,300, Rs. 50 (b) Rs. 1,100, Rs. 50

(c) Rs. 1,500, Rs. 30 (d) None.

May 2007

~~**Q8.** Area of a triangle with vertices (1,3), (5,6) & (-3,4) in terms of square units is:~~

~~(a) 5~~ ~~(b) 3~~ ~~**(c) 8**~~ ~~(d) 13~~

Aug 2007

~~**Q9.** The line joining (-1,1) and (2, -2) and the line joining (1, 2) and (2, k) are perpendicular to each other for the following value of k:~~

~~(a) 1~~ ~~(b) 0~~ ~~(c) -1~~ ~~**(d) 3**~~

~~**Q10.** The sides of an equilateral triangle are shortened by 12 units, 13 units and 14 units respectively & a right-angled triangle is formed. The side of the equilateral triangle is:~~

~~**(a) 17 units**~~ ~~(b) 16 units~~ ~~(c) 15 units~~ ~~(d) None~~

Q11. Value of $\sqrt{6+\sqrt{6+\sqrt{6+\cdots\ldots\ldots\infty}}}$ is:

(a) -3 , (b) 2 **(c) 3** (d) 4

Nov 2007

~~**Q12.** Area of a rectangular garden is 8000 square metres. Ratio in length and breadth is 5:4. A path of uniform width, runs all-round the inside of the garden. If the path occupies 3200 m2, what is its width?~~

~~(a) 12m~~ ~~(b) 6m~~ ~~**(c) 10m**~~ ~~(d) 4m~~

~~**Q13.** The value of k for which the points (k, 1), (5, 5) and (10, 7) may be collinear is:~~

~~**(a) k = - 5**~~ ~~(b) k = 7~~ ~~(c) k = 9~~ ~~(d) k = 1~~

Feb 2008

Q14. A man went to Reserve Bank of India with Rs. 1,000. He asked the cashier to give him Rs. 5 & Rs. 10 notes only in return. The man got 175 notes in all. Find how many notes of Rs. 5 and Rs. 10 did he receive?

(a) (25, 150) (b) (40, 110) **(c) (150,25)** (d) None.

~~**Q15.** The centroid of the triangle ABC is at the point (2, 3). A and B are the points (5, 6) and (-1, 4) respectively. The coordinates of C are:~~

~~(a) (1,-2)~~ ~~**(b) (2,-1)**~~ ~~(c) (1,2)~~ ~~(d) (2,3)~~

June 2008

Q16. A man rowing at the rate of 5 km in ah hour in still water takes thrice as much time in going 40 km up the river as in going 40 km down. Find rate at which the river flows:

(a) 9 km/hr **(b) 2.5 km/hr** (c) 12 km/hr (d) None.

Q17. The value of $2+\cfrac{1}{2+\cfrac{1}{2+\cfrac{1}{2+\cfrac{1}{2+\cdots\infty}}}}$ is

(a) $1 \pm \sqrt{2}$ (b) $2 \pm \sqrt{5}$. (c) $2 \pm \sqrt{3}$ (d) None.

Dec 2008

Q18. If $x^3 - 6x^2 + 11x - 6 = 0$ then find value of (3x - 4)

(a) (1,2,3) **(b) (-1,2,5)** (c) (-1,3, 5) (d) (2, 3, 5)

Q19. If $(2+\sqrt{3})$ is a root of a quadratic equation $x^2 + px + q = 0$ then find the value of p & q.

(a) (4.-1) (b) (4,1) **(c) (-4,1)** (d) (2,3)

~~**Q20.** If area & perimeter of a rectangle is 6000 cm^2 & 340 cm respectively, then length of rectangle is:~~

~~(a) 140~~ ~~**(b) 120**~~ ~~(c) 170~~ ~~(d) 200~~

June 2009

~~**Q21.** A straight line passes through the point (3, 2). Find the equation of the straight line.~~

~~(a) x + y = 1~~ ~~(b) x + y = 3~~ ~~**(c) x + y = 5**~~ ~~(d) None~~

Q22. One root of the equation: $x^2 - 2(5+m)x + 3(7+m) = 0$ is reciprocal of the other. Find the value of M.

(a) - 7 (b) 7 (c) 1/7 (d) - 1/7

Q23. A straight line of x − 15 is:

(a) Parallel to Y axis (b) Parallel to X axis
(c) A diagonal line. (d) Passes through origin.

Dec 2009

Q24. If length of a rectangle is 5 cm more than the breadth & if the perimeter of the rectangle is 40 cm, then the length & breadth of the rectangle will be:

(a) 7.5 cm, 2.5 cm (b) 10 cm, 5 cm
(c) 12.5 cm, 7.5 cm (d) 15.5 cm, 10.5 cm.

Q25. The point of intersection of the lines 2x - 5y − 6 and x + y − 3 is:

(a) (0,3) **(b) (3, 0)** (c) (3, 3) (d) (0, 0)

Q26. Find equation of the line passing through the point (1, 1) & parallel to the line 3x + 5y + 17 − 0

(a) 3 x + 5y * 8 − 0 (b) 5 x + 3y + 8 − 0
(c) 5 x + 3y - 8 − 0 **(d) 3 x + 5y - 8 − 0**

Q27. The graph of straight-line x - 5 will be:

(a) Intersecting both the axis **(b) Parallel to y- axis**
(c) Parallel to x - axis (d) None of these

Q28. Find the equation of the line joining the point (3,5) with the point of intersection 2x + 3y - 5 − 0 and 3x + 5y - 7 − 0.

(a) 6x + y + 23 − 0 **(b) 6x + y-23 = 0**
(c) 6x + 2y + 14 − 0 (d) 2x + 5y + 5 − 0

June 2010

Q29. Roots of the equation $3x^2 - 14x + k = 0$ will be reciprocal of each other if:

(a) k = -3 (b) k = 0 **(c) k = 3** (d) k= 14.

Q30. The lines 3x + 4y + 10 − 0 and 4x - 3y + 5 − 0 are

(a) Parallel **(b) Perpendicular to each other**
(c) Bisect each other (d) Coincide with each other.

Q31. Positive value of 'k' for which the roots of equation $12x^2 + kx + 5 = 0$ are in ratio 3:2, is:

(a) 5/12 (b) 12/5 (c) $\frac{3\sqrt{10}}{2}$ **(d) $5\sqrt{10}$**

Q32. If one root of the equation $x^2 - 3x + k = 0$ is 2, then value of k will be:

(a) -10 (b) 0 **(c) 2** (d) 10

June 2011

Q33. If ratio of (5x - 3y) & (5y - 3x) is 3:4, then x:y is:

(a) 27:29 (b) 29 :27 (c) 3 : 4 (d) 4:3

Q34. If roots of equation $x^2 + x + r = 0$ are '∝' and 'β' and $\propto^3 + \beta^3 = -6$. Find the value 'r'?

(a) -5/3 (b) 7/3 (c) -4/3 (d) 1

Q35. For all λϵR, line (2 + λ)x + (3 - λ)y + 5 − 0 passing through a fixed point, then fixed point is __.

(a) (1,1) **(b) (-1,-1)** (c) (1,-1) (d) (-1,1)

Dec 2011

Q36. A straight line "L" is perpendicular to the line 2X + Y - 6 − 0 & Cuts the axis at (3,0). Find the distance from the point (2, - 3) to the line "L".

(a) $1/\sqrt{5}$ (b) 5 **(c) $\sqrt{5}$** (d) $2\sqrt{5}$

Q37. If one root of the Equation $px^2 + qx + r = 0$ is r then other root of the Equation will be:

(a) 1/q (b) 1/r **(c) 1/p** (d) $\frac{1}{p+q}$

Q38. If ratio of roots of $4x^2 - 6x + p = 0$ is 1:2, p = ___.

(a) 1 **(b) 2** (c) - 2 (d) -1

Q39. If p & q are the roots of the Equation $x^2 - bx + c = 0$, equation whose roots are (pq + p + q) & (pq - p - q) is ___.

(a) $x^2 - 2cx + C^2 - b^2 = 0$ (b) $x^2 - 2bx + C^2 + b^2 = 0$
(c) $8cx^2 - 2(b + c)x + C^2 = 0$ (d) $x^2 + 2bx - (C^2 - b^2) = 0$

June 2012

Q40. If AM between roots of a QE is 8 & GM between them is 5, the equation is _____.

(a) $x^2 - 16x - 25 = 0$ **(b) $x^2 - 16x + 25 = 0$**
(c) $x^2 - 16x + 5 = 0$ (d) None of these.

Q41. The equation of the straight line passing through the intersection of 4x - 3y -1 −0 and 2x - 5y + 3 − 0 and parallel to 4x + 5y − 6 is:

(a) 4x + 5y -12 = 0 (b) 4x + 5y -16 = 0
(c) 4x + 5y - 9 = 0 (d) 4x + 5y - 4 − 0

Q42. Find point which divides the line joining the points (2, - 2) & (-4, 1) in the ratio 5: 2 externally:

(a) (- 5, 8) **(b) (- 8, 3)** (c) (-5, 4) (d) (-8,5)

Q43. If one of the roots of the equation $x^2 + px + a$ is $\sqrt{3}+2$, then the value of 'p' and 'a' is:

(a) -4,-1 (b) 4,-1 **(c) - 4, 1** (d) 4, 1

Dec 2012

Q44. If |x - 2| + |x - 3| = 7 then, 'x' = ____

(a) 6 (b) -1 **(c) 6 & -1** (d) None

Q45. Roots of equation $2x^2 + 3x + 7 = 0$ are α & β. The value of $\alpha\beta^{-1} + \beta\alpha^{-1}$ is

(a) 2 (b) 3/7 (c) 7/2 **(d)-19/14**

Q46. If the point (k, 3) is at a distance of $\sqrt{5}$ units from the points (2, k), the value of 'k' is
(a) 1 (b) 4. **(c) 1 & 4 both** (d) None.

Q47. $x^2 - 2kx + 16 = 0$ will have equal roots when 'k' = ___.
(a) ±1 (b) ± 2 (c) ±3 **(d) ± 4**

June 2013

Q48. If α & β are the roots of the equation $x^2 + 7x + 12 = 0$, then the equation whose roots $(\alpha + \beta)^2$ and $(\alpha - \beta)^2$ will be:
(a) $x^2 - 14x + 49 = 0$ (b) $x^2 - 24x + 144 = 0$
(c) $x^2 - 50x + 49 = 0$ (d) $x^2 - 19x + 144 = 0$

Q49. State the type of Quadrilateral formed by the vertices (1, 1), (4, 4), (4, 8), (1,5):
(a) Parallelogram (b) Squares
(c) Rhombus (d) Rectangle.

Q52. If three points (1,3), (-2,1) & (k, -1) are colinear then the value of 'k' is:
(a) 0 (b) 5 **(c) -5** (d) 3

Dec 2013

Q53. If b^2-4ac is a square but not equal to zero. Roots are:
(a) real and equal (b) real, irrational & equal
(c) real, rational & unequal (d) Imaginary.

Q54. A seller makes an offer of selling certain articles that can be described by the equation x = 25 - 2y where 'x' is the price per unit & 'y' denotes the number of unit. The cost price of the article is Rs. 10 per unit. The maximum quantity that can be offered in a single deal to avoid loss is ____.
(a) 6 **(b) 7** (c) 8 (d) 9

Q55. If kx - 4 = (k - 1)x, then which of the following is true?
(a) x = - 5 (b) x = - 4 (c) x = - 3 **(d) x = + 4**

Q56. The value of 'K' for which the system of equations kx + 2y = 5 and 3x + y = 1 has no solution is:
(a) 5 (b) $\frac{2}{3}$ **(c) 6** (d) $\frac{3}{2}$

June 2014

Q57. Lines 3x-4y+5=0, 7x-8y+5=0, 4x+5y-45=0 are
(a) Concurrent (b) Parallel
(c) Not Concurrent (d) None of these

Q58. Roots of the equation $y^3+y^2-y-1= 0$ are:
(a) (1, 1, -1) **(b) (-1.-1,1)** (c) (1,1,1) (d) None

Q59. The distance from the origin to the point of intersection of two straight lines having equations 3x-2y-6 & 3x+2y−18 is:
(a) 2 units (b) 3 units (c) 4 units **(d) 5 units**

Dec 2014

Q60. Equation x + 5y = 33; $\frac{x+y}{x-y} = \frac{13}{3}$ has the solution (x, y) as:
(a) (4, 8) **(b) (8, 5)** (c) (4,16) (d) (16,4)

Q61. Equation of a line parallel to the line joining the points (7, 5) and (2, 9) which passes through the point (3, - 4) is:
(a) 7x - 4y + 8 = 0 (b) 7x - 4y - 8 = 0
(c) 5y + 4x + 8 = 0 (d) 5y - 4x + 8 = 0

June 2015

Q62. Number of students in each section of a school is 36. After admitting 12 new students, four new sections were started. If total no. of students in each section now is 30, then number of sections initially were.
(a) 6 (b) 10 (c) 14 **(d) 18**

Q63. If α and β be the roots of the quadratic equation $2x^2$ - 4x = 1. the value of $\frac{\alpha^2}{\beta} + \frac{\beta^2}{\alpha}$ is _____.
(a) -11 (b) 22 **(c) -22** (d) 11

Q64. A person on a tour has Rs. 9,600 for his expenses. If his tour is extended by 16 days, he has to cut down his daily expenses by Rs. 20, his original duration of tour had been.
(a) 48 days (b) 64 days **(c) 80 days** (d) 96 days

Q65. The present age of a man is 8 years more than thrice the sum of the ages of his two grandsons who are twins. After 8 years, his age will be 10 years more than twice the sum of the ages of his grandsons. The age of a man when his grandsons were born was:
(a) 86 years **(b) 73 years** (c) 68 years (d) 63 years

Q66. Roots of cubic equation x^3-7x+6 = 0 are:
(a) 1,2 & 3 (b) 1, -2 & 3 **(c) 1,2 &- 3** (d) 1, -2 & - 3

Dec 2015

Q67. If the roots of the equation $4x^2$ -12x + k = 0 are equal, then the value of k is:
(a) -3 (b) 3 (c) -9 **(d) 9**

Q68. If 3x - y − 2, 5x + ay − 3 and 2x +y − 3 are concurrent lines, then the value of 'a' is:
(a) -1 **(b) -2** (c) 2 (d) 3

Q69. The equation of line passing through the point of intersection of the lines y − 3 and x + y − 0 and parallel to the 2x - y − 4 is:
(a) 2x - y + 9 = 0 (b) 2x - y - 9 = 0
(c) x - 2y + 9 = 0 (d) x + 2y - 9 = 0

Q70. If α + β = -2 & α β = -3, then α, β are the roots of the equation, which is:
(a) x^2 - 2x - 3 = 0 **(b) x^2 + 2x - 3 = 0**
(c) x^2 + 2x + 3 = 0 (d) x^2 - 2x + 3 = 0

June 2016

Q71. Let E_1 and E_2 are two linear equations in two variables x and y. (0,1) is a solution of both equations E_1 and E_2. (2, -1) is a solution of equation E_1 only and (-2, -1) is solution of E_2 only then E_1 & E_2 are

(a) x = 0 , y = 1 (b) 2x - y = - 1, 4x + y = 1
(c) x + y = 1, x - y = - 1 (d) x + 2y = 2, x + y = 1

~~**Q72.** If a line passes through the mid-point of the line segment joining the points(- 3, - 4) and (- 5, 6) and its slope is $\frac{4}{5}$, then the equation of the line is:~~

~~(a) 4X - 5Y + 21 = 0~~ (b) 4X - 5Y + 11 = 0
~~(c) 5X - 4Y + 21 = 0~~ (d) 5X + 4Y + 11 = 0

Q73. If difference between the roots of the equation x^2 - kx + 8 = 0 is 4, then the value of K is:

(a) 0 (b) ±4 (c) ± $8\sqrt{3}$ **(d) ± $4\sqrt{3}$**

Dec 2016

Q74. A cottage industry produces a certain number of pottery articles in a day. It was observed on a particular day that the cost of each article (in Rs.) was 2 more than thrice the number of articles produced on that day. If the total cost of production on that day was Rs. 800, the number of articles produced was

(a) 14 **(b) 16** (c) 12 (d) 18

~~**Q75.** Triangle formed by x + 2y − 3, 2x - y −1 & y − 0 is~~

~~(a) Right angled~~ (b) Equilateral
(c) Isosceles (d) None of these.

June 2017

Q76. If α, β are the roots of the equation $x^2 + x + 5 = 0$ then $\frac{\alpha^2}{\beta} + \frac{\alpha}{\beta^2}$ is equal to

(a) $\frac{16}{5}$ (b) 2 (c) 3 **(d) $\frac{14}{5}$**

Dec 2017

Q77. Roots of the equation $x^3 + 7x^2 - 21x - 27 = 0$ are

(a) −1,3,9 (b) 1, −3,9 **(c) $-1, 3, -9$** (d) None

Q78. Difference b/w roots of equation $x^2 - 7x - 9 = 0$ is:

(a) 7 **(b) $\sqrt{85}$** (c) 9 (d) $2\sqrt{85}$

Q79. If the sum of two numbers is 13 and the sum of their squares is 85, then the numbers will be:

(a) 3,10 (b) 5,8 (c) 4,9 **(d) 6,7**

June 2018

Q80. If α+β = −2 and αβ = −3, then α, β are the roots of the equation, which is:

(a) $x^2 - 2x - 3 = 0$ **(b) $x^2 + 2x - 3 = 0$**
(c) $x^2 + 2x + 3 = 0$ (d) $x^2 - 2x + 3 = 0$

Q81. If $\frac{3}{x+y} + \frac{2}{x-y} = -1$ & $\frac{1}{x+y} - \frac{1}{x-y} = \frac{4}{3}$ then (x, y) is:

(a) (2,1) **(b) (1, 2)** (c) (−1,2) (d) (−2,1)

Q82. If α, β are the roots of the equation $x^2 + x + 5 = 0$ then $\frac{\alpha^2}{\beta} + \frac{\beta^2}{\alpha}$ is equal to **[Same as June 2017]**

(a) 16/5 (b) 2 (c) 3 **(d) 14/5**

Q83. If roots of equation $kx^2 - 3x - 1 = 0$ are the reciprocal of the roots of the equation $x^2 + 3x - 4 = 0$ then K =?

(a) −4 **(b) 4** (c) 3 (d) 3

Q84. Find K, if the roots of x^3-$15x^2$ + kx – 45 =0 are in AP

(a) 56 **(b) 59** (c) -56 (d) -59

Dec 2018

Q85. Let α and β be the roots of $x^2 + 7x + 12 = 0$. Then the value of $\left(\frac{\alpha^2}{\beta} + \frac{\beta^2}{\alpha}\right)$ will be:

(a) $\frac{7}{12} + \frac{12}{7}$ (b) $\frac{49}{144} + \frac{144}{49}$
(c) $-\frac{91}{12}$ (d) None of the above.

Q86. When two roots of quadratic equation are a, $\frac{1}{a}$ then what will be the quadratic equation:

(a) $ax^2 - (a^2 + 1)x + \alpha = 0$ (b) $ax^2 - a^2x + 1 = 0$
(c) $ax^2 - (\alpha^2 + 1)x + 1 = 0$ (d) None of these

June 2019

Q87. A number consists of 2 digits such that digit in one's place in thrice the digit in ten's place. If 36 be added then digits are reversed. Find the number _____.

(a) 62 **(b) 26** (c) 39 (d) None

Q88. Find the condition that one roots is double the other of $ax^2 + bx + c = 0$

(a) $2b^2 = 3ac$ (b) $b^2 = 3ac$ **(c) $2b^2 = 9ac$** (d) None

Dec 2019

Q89. Roots of equation $x^3 + 9x^2 - x - 9 = 0$.

(a) 1,2,3 (b) 1, −1, −9 **(c) 2, 3, −9** (d) 1,3,9

Q90. $\frac{2x+5}{10} + \frac{3x+10}{15} = 5$

(a) 10.58 **(b) 9.58** (c) 9.5 (d) None

Q91. Find value of $x^2 - 10x + 1$ if $x = \frac{1}{5-2\sqrt{6}}$

(a) 25 (b) 1 **(c) 0** (d) 49

Q92. Find value of K in $3x^2 - 2kx + 5 = 0$ if x = 2

(a) 17/4 (b) -7/14 (c) 4/17 (d) -4/17

Q93. Find roots of the equation: $4^x/8^y = 128$ & $3^x/27^y = 1/3$

(a) 2, 1 (b) -2, 1 (c) 2, -1 (d) 1, 2

Dec 2020

Q94. Rational root of the equation $0 = 2p^3 - p^2 - 4P + 2$ is:

(a) 2 (b) -2 **(c) ½** (d) -1/2

Q95. Roots of $2x^2 - (a+6)2x + 12a = 0$,
(a) 6 & a (b) 4 & a^2 (c) 3 & 2a (d) 6 & 3a

Q96. Solving equation $m + \sqrt{m} = 6/25$, the value of m =
(a) 1/25 (b) 2/25 (c) 3/25 (d) 1

Q97. Solving equation $3g^2 - 14g + 16 = 0$,
(a) 0 **(b) 2 & 8/3** (c) 8 & 2/3 (d) ±5

Jan 2021

Q98. The value of P for which the difference between the root of equation $x^2 + px + 8 = 01 < 2$ is
(a) ± 2 (b) ± 4 (c) ± 6 (d) ± 8

Q99. If quadratic equation $x^2 + px + q = 0$ & $x^2 + qx + p = 0$ have a common root then $p + q = ?$
(a) 0 (b) 1 **(c) -1** (d) 2

Q100. HM of roots of $(5+\sqrt{2})x^2 - (4+\sqrt{5})x + (8+2\sqrt{5}) = 0$ is
(a) 2 **(b) 4** (c) 6 (d) 8

July 2021

Q101. If α & β are the roots of equation $2x^2 + 5x + k = 0$, & $4(\alpha^2 + \beta^2 + \alpha\beta) = 23$, then which of the following is true?
(a) $k^2 + 3k - 2 = 0$ (b) $k^2 - 2k + 3 = 0$
(c) $k^2 - 2k - 3 = 0$ **(d) $k^2 - 3k + 2 = 0$**

Q102. Value of 'k' is, if 2 is root of $x^3 - (k+1)x + k = 0$
(a) 2 **(b) 6** (c) 1 (d) 4

Q103. The cost of 2 oranges and 3 apples is ₹ 28. If cost of apple is doubled then cost of 3 oranges and 5 apples is ₹ 75. The original cost of 7 oranges & 4 apples (in (₹)) is:
(a) 59 (b) 47 (c) 71 (d) 63

Q104. Sum of square of any real positive quantity & its reciprocal is never less than:
(a) 1 **(b) 2** (c) 3 (d) 4

Dec 2021

Q105. If one root is half of the other of a quadratic equation and the difference in roots is a, then the equation is
(a) $x^2 + ax + 2a^2 = 0$ (b) $x^2 - 3ax - 2a^2 = 0$
(c) $x^2 - 3ax + 2a^2 = 0$ (d) $x^2 + 3ax - 2a^2 = 0$

Q106. In a MCQ paper consisting of 100 questions of 1 mark each, a candidate gets 60% marks. If candidate attempted all questions & there was a penalty of 0.25 marks for wrong answer, number of right answer - wrong answers is:
(a) 32 **(b) 36** (c) 40 (d) 38

Q107. If square of a number exceeds twice of number by 15, then number that satisfies the condition is
(a) -5 (b) 3 **(c) 5** (d) 15

Q108. Solve $x^3 - 7x + 6 = 0$
(a) 6, 7, -4 (b) -1, -2, -3 **(c) 1, 2, -3** (d) 2, 4, 6

June 2022

Q109. Values of x & y for $\frac{3}{x+y} + \frac{2}{x-y} = 3, \frac{2}{x+y} + \frac{3}{x-y} = 3\frac{2}{3}$
(a) (1, 2) (b) (-1, -2) (c) (1, ½) **(d) (2, 1)**

Q110. If the second root of the given equation is reciprocal of first root then value of 'k' in equation $5x^2 + 13x + k = 0$
(a) 3 (b) 2 (c) 1 **(d) 5**

Q111. A plumber can be paid either ₹ 600 & ₹ 50 per hour or ₹ 170 per hour. If the job takes n hours, for what value of n both methods earn equal wages for the worker?
(a) 5 (b) 6 (c) 4 (d) 7

Q112. If a person has cloth of total 91 cm. If he divides it into 3 parts then longest part is twice the shortest & another part is 3 cm more than shortest. What is the shortest one?
(a) 25 (b) 44 **(c) 22** (d) 46

Q113. Find x & y for $(b/a)x + (a/b)y = a^2 + b^2$
(a) x =a/b, y = b/a (b) x =3ab, y = -ab
(c) x =-ab, y = 3ab **(d) x =ab, y = ab**

Dec 2022

Q114. Roots of $x^2 - px + q = 0$ are in ratio 2:3, then:
(a) $p^2 = 25q$ (b) $P^2 = 6q$ **(c) $6p^2 = 25q$** (d) None

Q115. If roots of $(k-4)x^2$ -2kx + (k+5) = 0 are equal, k =
(a) 18 **(b) 20** (c) 19 (d) 21

Q116. If cost of 3 bags & 4 pens is ₹ 257 whereas the cost of 4 bags & 3 pens is ₹ 324, then the cost of one bag is:
(a) 8 (b) 24 (c) 32 **(d) 75**

Q117. Solution of $2x - 5y + 4 = 0$ & $2x + y - 8 = 0$ will be
(a) $(2, -3)$ (b) $(1, -3)$ **(c) $(3, 2)$** (d) $(-2, 2)$

Q118. A garrison of 400 men had a provision for 31 days. After 28 days 280 persons re-enforcement left. Find number of days for which the remaining ration will be sufficient?
(a) 3 (b) 6 (c) 8 **(d) 10**

June 2023

Q119. If α & β are roots of $x^2 - 2x - 3 = 0$; then equation whose roots are α+β and α−β is:
(a) $x^2 - 6x - 8 = 0$ **(b) $x^2 - 6x + 8 = 0$**
(c) $x^2 + 6x + 8 = 0$ (d) $x^2 + 6x - 8 = 0$

Q120. Largest side of a triangle is 3 times shortest side & third side is 4 cm shorter than largest side. If perimeter of triangle is at least 59 cm, what is the length shortest side?
(a) Less than 7 cm (b) Greater than or equal to 7 cm
(c) Less than 9 cm **(d) Greater than equal to 9 cm.**

Q121. If α and β are roots of the equation $x^2 - (n^2+1)x + \frac{1}{2}(n^4 + n^2 + 1) = 0$. Then the value of $\alpha^2 + \beta^2$ is:
(a) 2n **(b) n^2** (c) $2n^2$ (d) n^3

Q122. The age of a person is four times the sum of the ages of his two sons. After 10 years his age will 2 times of the sum of their ages. Then the present age of the man is
(a) 56 years (b) 45 years **(c) 60 years** (d) 64 years

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Inequalities

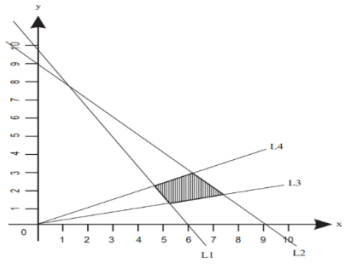
TO BUY HARDCOPY OF PYQs

SCAN ME

Click here

Nov 2006

Q1. L1: 5x+3y=30; L2: x+y=9; L3: y=x/3; L4: y=x/2. Common region refers to __.



(a) 5x+3y≤30; x+y≤9; y≤1/5x; y≤x/2; x ≥ 0, y ≥ 0

(b) 5x+3y ≥ 30; x+y ≤ 9; y ≥ x/3; y ≤ x/2; x ≥ 0, y ≥ 0

(c) 5x+3y≥30; x+y≥9; y≥x/3; y≥x/2; x≥0, y≥0

(d) 5x+3y>30; x+y<9; y≥9; y≤x/2; x≥0, y≥0

Q2. If $\left|x+\frac{1}{4}\right| > \frac{7}{4}$, then ____.

(a) $x < \frac{-3}{2}$ or $x > 2$

(b) x < -2 or x > $\frac{3}{2}$

(c) $-2 < x < \frac{3}{2}$

(d) None of these.

Feb 2007

Q3. If $\left|\frac{3x-4}{4}\right| \le \frac{5}{12}$, the solution set is:

(a) $\left\{x: \frac{19}{18} \le x \le \frac{29}{18}\right\}$

(b) $\left\{x: \frac{7}{9} \le x \le \frac{17}{9}\right\}$

(c) $\left\{x: \frac{-29}{18} \le x \le \frac{-19}{18}\right\}$

(d) None of these.

Q4. Solution of 6x + y ≥ 18, x + 4y ≥ 12, 2x + y ≥ 10 is __.

(a) (0, 18), (12, 0), (4, 2) & (7, 6)

(b) (3, 0), (0, 3), (4, 2), & (7, 6)

(c) (5, 0), (0, 10), (4, 2) & (7, 6)

(d) (0,18), (12, 0), (4, 2), (0, 0) and (7, 6)

May 2007

Q5. A car manufacturing company manufactures cars of two types A & B. Model A requires 150 man-hours for assembling, 50 manhours for painting & 10 man-hours for checking & testing. Model B requires 60 man-hours for assembling, 40 man-hours for painting & 20 man-hours for checking & testing. There are available 30,000 manhours for assembling, 13,000 man-hours for painting & 5,000 man-hours for checking & testing. Then, inequalities are:

(a) 5x+2y ≥ 1000; 5x + 4y ≥ 1300; x + 2y ≤ 500; x ≥ 0, y ≥ 0.

(b) 5x + 2y ≤ 1000; 5x + 4y ≤ 1300; x + 2y ≤ 500; x≥0, y≥0.

(c) 5x + 2y ≤ 1,000, 5x + 4y ≤ 1300; x + 2y ≥ 500; x≥0, y≥0.

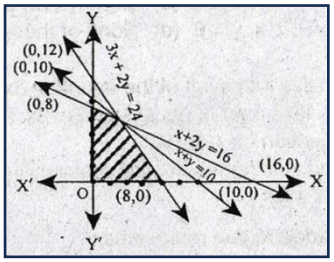
(d) 5x + 2y = 1000, 5x + 4y ≤ 1300, x + 2y = 500; x≥0, y ≥O.

Aug 2007

Q6. Rules demand that employer should employ not more than 5 experienced hands to 1 fresh. Express as ____.

(a) y ≥ x/5 (b) 5y ≥ x (c) Both (a)&(b) (d) 5y ≤ x

Q7. The shaded region represents:



(a) 3x + 2y < 24, x + 2y ≥ 16, x + y ≤ 10x, x≥ 0, y ≥0

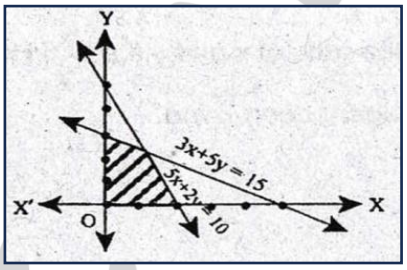
(b) 3x + 2y < 24, x + 2y ≤16, x + y ≥10, x ≥0, y ≥0

(c) 3x + 2y < 24, x + 2y <16, x + y ≤10, x >0, y ≥ 0

(d) None of these

Nov 2007

Q8. The shaded region represents:



(a) 3x + 5y<15, 5x + 2y ≥ 10, x, y≥0

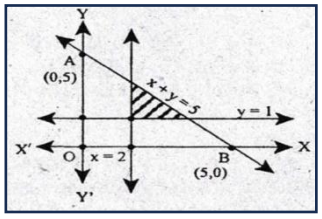
(b) 3x + 5y ≤ 15, 5x + 2y ≤ 10, x, y ≥ 0

(c) 3x + 5y≥15, 5x +2y≥10, x, y, ≥0

(d) None of these

Feb 2008

Q9. The shaded region represents:



(a) x + y ≤ 5, x ≥2, y < 1

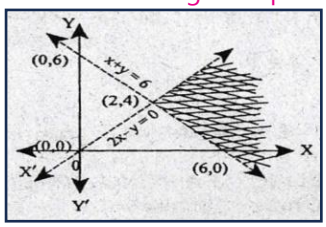
(b) x + y ≤ 5, x ≥ 2, y ≥ 1

(c) x + y ≥ 5, x ≥2 , y ≥1

(d) None of these.

June 2008

Q10. The shaded region represents:



(a) x + y > 6, 2x -y > 0

(b) x + y < 6, 2x - y > 0

(c) x + y > 6, 2x -y < 0

(d) None of these

June 2008

Q11. If a >0 and b <0, it follows that:

(a) $\frac{1}{a} > \frac{1}{b}$ (b) $\frac{1}{a} < \frac{1}{b}$ (c) $\frac{1}{a} = \frac{1}{b}$ (d) None

Dec 2008

Q12. Linear relationship between 2 variables in inequality:

(a) ax + by ≤ c (b) ax - by ≤c (c) xy + by ≤ c (d) None

June 2010

Q13. Solution of inequality $\frac{5-2x}{3} \leq \frac{x}{6} - 5$ is

(a) x≥8 (b) x ≤8 (c) x = 8 (d) None

Dec 2010

Q14. On average an experienced person does 7 units of work while a fresh one work 5 units of work daily but the employer has to maintain an output of at least 35 units of work per day. Situation can be expressed as:

(a) 7x+5y<35 (b) 7x+5y≤35 **(c) 7x+5y≥35** (d) None

June 2011

Q15. Solution space of inequalities 2x+y≤10 & x–y≤5:
(i) includes the origin (ii) includes the points (4, 3). Correct is

(a) Only (i) (b) Only (ii) (c) Both (d) None

Dec 2011

Q16. Experienced person (x) does 5 units of work while a fresh one (y) does 3 units of work daily but the employer has to maintain an output of at least 30 units of work per day. This situation can be expressed as ___.

(a) 5x+3y≤30 **(b) 5x+3y≥30** (c) 5x+3y>30 (d) None

June 2012

Q17. Find the range of real values of x satisfying the inequalities 3x - 2 > 7 and 4x -13 > 15

(a) x>3 **(b) x>7** (c) x<7 (d) x< 3

Dec 2012 Q18. Same as Q16

June 2013

Q19. Union forbids him to employ less than 2 experienced persons to each fresh person. This can be expressed as ___.

(a) x ≤ y/2 **(b) y ≤ x / 2** (c) x ≥ 2y (d) None

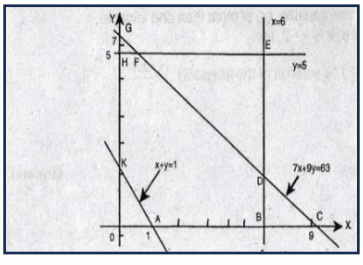
Dec 2013

Q20. Solution of inequality 8x+6<12x14 is:

(a) (-2,2) (b) (0,-2) (c) (2, 0) **(d) (-2,∞)**

June 2014

Q21. The graph of linear inequalities 7x+9y ≤63, x+y ≥1,0 ≤x ≤6 & common region of inequalities is:

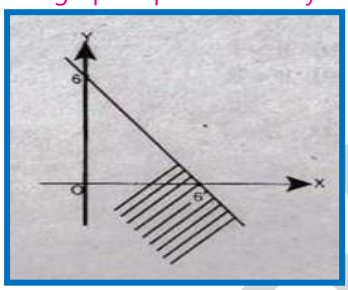


(a) BCDB & DEFD (b) Unbounded
(c) HFGH **(d) ABDFHKA**

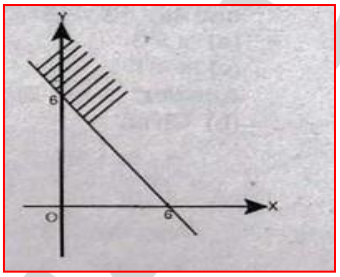
Dec 2014

Q22. Which graph represents x + y ≤ 6 is ___

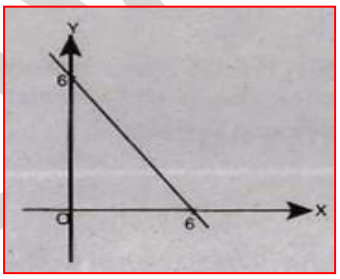
(a)



(b)

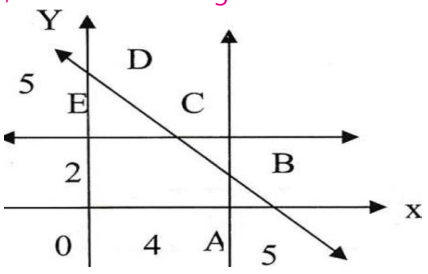


(c)



(d) None

Q23. Given conditions x+y ≥ 5, x+y ≤ 5, 0 ≤ x ≤ 4 & 0 ≤ y ≥ 2, then common region under these conditions is



(a) ECDE (b) EOABCE
(c) Line segment CD (d) Line segment BC

June 2015

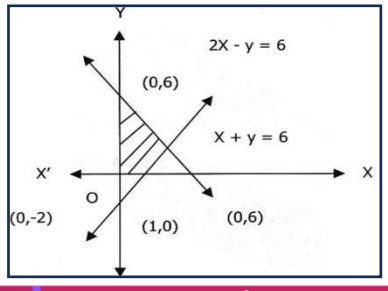
Q24. Common region in the graph of linear inequalities 2x + y > 18, x + y≥ 12 & 3x + 2y ≤ 34 is:

(a) unbounded (b) infeasible
(c) feasible and bounded (d) feasible & unbounded

Dec 2015

Q25. By x+y = 6; 2x-y = 2 common region refers to

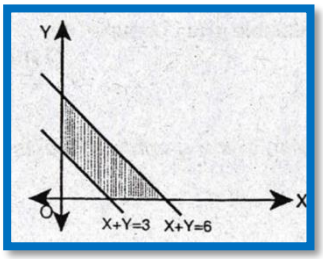
(a) x + y ≥ 6, 2x - y ≤ 2
(b) x + y ≤ 6, 2x-y ≤ 2
(c) x + y ≤ 6, 2x - y ≥ 2
(d) x + y < 6, 2x - y > 2



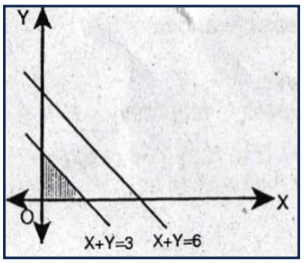
June 2016

Q26. Common region of $x+y \le 6$; $x+y \ge 3$; $x \ge 0$; $y \ge 0$ is

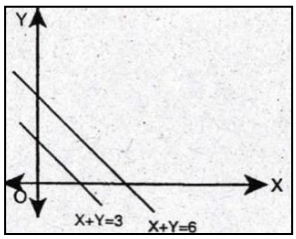
(a)



(b)



(c)

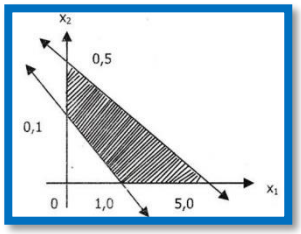


(d) None

Dec 2016

Q27. $x_1 + 2x_2 \le 5$; $x_1 + x_2 \ge 1$; $x_1 \ge 0$, $x_2 \ge 0$ represents

(a)



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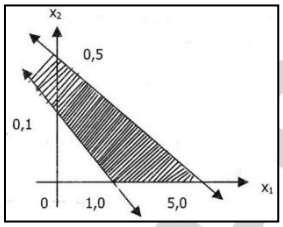

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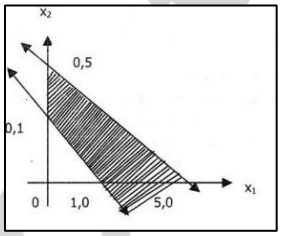

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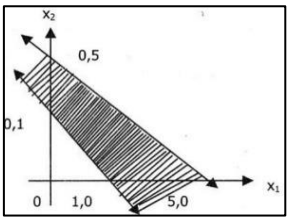


June 2017

Q28. A dietitian wishes to mix together two kinds of food so that the vitamin content of the mixture is at least 9 units of vitamin A, 7 units of vitamin B, 10 units of vitamin C &12 units of vitamin D. The vitamin content per Kg. of each food is shown below:

Particulars	A	B	C	D
Food I	2	1	1	2
Food II	1	1	2	3

Assuming x units of food I is to be mixed with y units of food II, expressed as -

(a) $2x+y \le 9$; $x+y \le 7$; $x+2y \le 10$; $2x+3y \le 12$; $x>0$, $y>0$

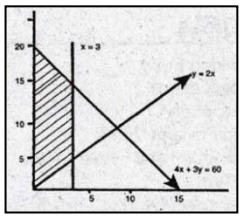
(b) $2x+y \ge 30$; $x+y \le 7$; $y+2y \ge 10$; $x+3y \ge 12$

(c) $2x+y \ge 9$; $x+y \ge 7$; $y+y \le 10$; $x+3y \ge 12$

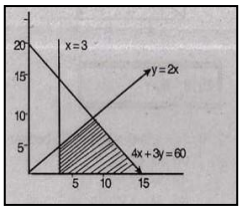
(d) $2x+y \ge 9$; $x+y \ge 7$; $y+2y \ge 10$; $2x+3y \ge 12$; $x \ge 0$, $y \ge 0$.

Q29. The common regions by the inequalities $4x + 3y \le 60$; $y \ge 2x$; $x \ge 3$, $x \ge 0$ & $y \ge 0$ is

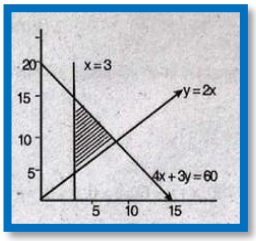
(a)



(b)



(c)



(d) None

June 2018

Q30. Linear relationship between 2 variables in inequality:

(a) $ax + by \le c$ (b) $ax - by \le c$ (c) $axy + by \le c$ (d) None

Dec 2018

Q31. $5x + y \leq 100, x + y \leq 60, x \geq 0, y \geq 0$ solution is

(a) $(0,0), (20,0), (10,50)$ & $(0,60)$

(b) (0,0), (60,0), (10,50) & (0,60)

(c) (0,0), (20,0), (0,100) & (10,50)

(d) None of these

[June 2019]

Q32. An employer recruits experienced (x) & fresh workmen (y) for his under condition that he cannot employ more than 11 people. x and y can be related by the inequality.

(a) $x + y \neq 11$ **(b) $x + y \leq 11, x \geq 0, y \geq 0$**

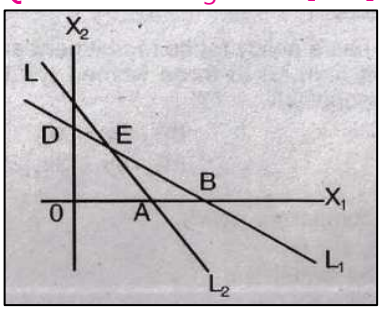
(c) $x + y \geq 11, x \geq 0, y \geq 0$ (d) None of these

June 2019

Q33. Solution set of in equations $x + 2 > 0$ & $2x - 6 > 0$ is

(a) $(-2, \infty)$ **(b) $(3, \infty)$** (c) $(-\infty, -2)$ (d) None

Q34. Common region of $L_1 = X_1 + X_2 < 4$; $L_2 = 2X_1 - X_2 > 6$



(a) OABC (b) Outside of OAB

(c) Δ ABCE **(d) Δ ABE**

Dec 2019

Q35. Solving $6x + y \geq 18, x + 4y \geq 12, 2x + y \geq 10$, we get

(a) $(0,18), (12,0), (4,2)$, & $(7,6)$

(b) (3,0), (0,3), (4,2) & (7,6)

(c) (5,0), (0,10), (4,2) & (7,6)

(d) (0,18), (12,0), (4,2), (0,0) & (7,6)

Dec 2020

Q36. Solve for x of Inequalities $2 \leq \frac{3x-2}{5} \leq 4$ where $x - N$

(a) {5,6,7} (b) {3,4,5,6} (c) {4,5,6} **(d) None**

Q37. Solution of inequality $\frac{5-2x}{3} \leq \frac{x}{6} - 5$ is

(a) $x = 8$ (b) $x \leq 8$ **(c) $x \geq 8$** (d) None

Jan 2021

Q38. Common region in graph of inequalities $x + y \leq 4, x - y \leq 4, x \geq 2$ is

(a) Equilateral triangle **(b) Isosceles triangle**

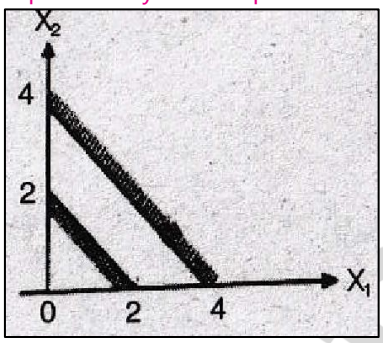
(c) Quadrilateral (d) Square

Dec 2021

Q39. XYZ Company has a policy for its recruitment as: it should not recruit more than 8 men (x) to 3 women (y). How can this be expressed in inequality?

(a) $3y \geq 8x$ (b) $3y \leq x/8$ **(c) $8y \geq 3x$** (d) $8y \leq 3x$

Q40. The region indicated by the shading in the graph is expressed by the inequalities



(a) $x_1 + x_2 \leq 2; x_1 + x_2 \geq 4; x_1 \geq 0, x_2 \geq 0$

(b) $x_1 + x_2 \leq 2; x_2x_1 + x_2 \leq 4; x_1 \geq 0, x_2 \geq 0$

(c) $x_1 + x_2 \geq 2; x_1 + x_2 \geq 4; x_1 \geq 0, x_2 \geq 0$

(d) $x_1 + x_2 \geq 2; x_1 + x_2 \leq 4; x_1 \geq 0, x_2 \geq 0$

Q41. A labour can be paid under two methods:

I: Rs.600 & Rs. 50 per hour. II: Rs. 170 per hour.

If the job takes 'x' hours, for how many values of 'x' does the method II give the labour the better wages?

(a) 3 (b) 4 **(c) 6** (d) 2

Dec 2022

Q42. If $2x + 5 > 3x + 2$ and $2x - 3 <= 4x - 5$, then 'x' can take which of the following value?

(a) 4 (b) -4 **(c) 2** (d) -2

June 2023

Q43. In a garment factory an average experienced person does 5 units of work while a fresh one does 3 units of work daily but -- has to maintain output of at least 30 units of work per -- is situation can be expressed as:

(a) $5x + 3y \leq x \geq 30$ (b) $5x + 3y \geq 30$

(c) $5x + 3y \geq 30, x \geq 0, y \geq 0$

(d) $5x + 3y \leq 30, x \geq 0, y \geq 0$

Q44. A fertilizer company produces two types of fertilizers called grade I & Grade II. Each of these types is proceed through two critical chemical plant units. The plants has maximum of 180 hours available in a week. Manufacturing one bag of grade I fertilizer requires 4 hours in the plant. Manufacturing one bag of grade II fertilizer required 10 hours in the plant. Express this using linear inequality.

(a) $5x_1 + 3x_2 \leq 180$ (b) $4x_1 + 5x_2 > 180$

(c) $2x_1 + 5x_2 > 180$ **(d) $4x_1 + 5x_2 \leq 180$**

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Time Value of Money

TO BUY HARDCOPY
OF PYQs

SCAN ME

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Nov 2006

Q1. Rs. 8,000 becomes Rs. 10,000 in 2 years at SI. Amount that will become Rs. 6,875 in 3 years at same rate of interest

(a) 4,850 **(b) 5,000** (c) 5,500 (d) 5,275

Q2. The difference between the simple and compound interest on a certain sum for 3 years at 5% p.a. is Rs. 228.75. The compound interest on the sum for 2 years at 5% p.a. is:

(a) 3,175 **(b) 3,075** (c) 3,275 (d) 2,975.

Q3. Mr. X Invests Rs. 10,000 every year starting from today for next 10 years suppose interest rate is 8% per annum compounded annually. Calculate future value of annuity: (Given that $(1 + 0.08)^{10} = 2.15892500$]

(a) 156454.88 (b) 144865.625 (c) 156554.88 (d) None

Q4. The present value of an annuity of Rs. 3,000 for 15 years at 4.5% p.a. C.I. is: [Given that $(1.045)^{15} = 1.935282$]

(a) 23,809.67 **(b) 32,218.67** (c) 32,908.67 (d) None

Feb 2007

Q5. The rate of simple interest on a sum of money is 6% p.a. for first 3 years, 8% p.a. for the next five years and 10% p.a. for the period beyond 8 years. If the simple interest accrued by the sum for a period for 10 years is Rs. 1,560. The sum is

(a) 1,500 **(b) 2,000** (c) 3,000 (d) 5,000

Q6. A sum of money doubles itself in 10 years. Number of years it would triple itself is:

(a) 25 years (b) 15 years **(c) 20 years** (d) None.

Q7. In what time will 3,90,625 amounts to 4,56,976 at 8% p.a., interest compounded semi-annually? [$(1.04)^4 = 1.16986$]

(a) 2 years (b) 4 years (c) 5 years (d) 7 years

Q8. A machine can be purchased for Rs. 50,000. Machine will contribute Rs. 12,000 p.a. for the next 5 years. Assume borrowing cost is 10% p.a. Determine whether machine should be purchased or not:

(a) Should be purchased **(b) Should not be purchased**
(c) Can't say about purchase (d) None of the above

Q9. How much amount is required to be invested every year so as to accumulate Rs. 3,00,000 at end of 10 years, if interest is compounded annually at 10%? [Give $(1.1)^{10} = 2.5937$]

(a) Rs. 18,823.65 (b) Rs. 18,828.65
(c) Rs. 18,832.65 (d) Rs. 18,882.65

May 2007

Q10. A certain sum of money amounts to Rs. 6,300 in two years and Rs. 7,875 in three years nine months at simple interest. Find the rate of interest per annum:

(a) 20% (b) 18% (c) 15% (d) 10%

Q11. How long will Rs. 12,000 take to amount to Rs. 14,000 at 5% p.a. converted quarterly? [Given: $(1.0125)^{12.4} = 1.1666$]

(a) 3 years **(b) 3.1 years** (c) 13.5 years (d) None

Q12. A company is considering proposal of purchasing a machine either by making full payment of Rs. 4,000 or by leasing it for 4 years at an annual rate of Rs. 1,250. Which course of action is preferable, if company can borrow money at 14% compounded annually? [Given: $(1.14)^4 = 1.68896$]

(a) Leasing is preferable (b) Should be purchased
(c) No difference (d) None of these

Q13. Vipul purchases a car for Rs. 5,50,000. He gets a loan of Rs. 5,00,000 at 15% p.a. from a Bank & balance Rs. 50,000 he pays at time of purchase. He has to pay whole amount of loan in 12 equal monthly instalments with interest starting from the end of the first month. The money he has to pay at the end of every month is: [Given $(1.0125)^{12} = 1.16075452$]

(a) 45,130.43 (b) 45,230.43 (c) 45,330.43 (d) None

Aug 2007

Q14. If Rs. 1,000 be invested at interest rate of 5% & interest be added to the principal every 10 years, then number of years in which it will amount to Rs. 2,000 is:

(a) $16\frac{2}{3}$ years (b) $6\frac{1}{4}$ years (c) 16 years (d) None

Q15. Annual birth & death rates per 1000 are 39.4 & 19.4 respectively. Number of years in which population will be doubled assuming there is no immigration or emigration is:

(a) 35 years (b) 30 years (c) 25 years (d) None

Q16. Effective rate equivalent to nominal rate of 6% compounded monthly is:

(a) 6.05 **(b) 6.16** (c) 6.26 (d) 6.07

Q17. A co. establishes a sinking fund to provide for payment of Rs. 2,00,000 debts maturing in 20 years. Contributions to the fund are to be made at the end of every year. Find amount of each annual deposit if interest is 5% p.a.:

(a) 6,142 **(b) 6,049** (c) 6,052 (d) 6,159

Nov 2007

Q18. A person borrows Rs. 5,000 for 2 years at 4% p.a. simple interest. He immediately lends to another person at $6\frac{1}{4}$ % p.a. for 2 years. Find his gain in transaction per year:

(a) 112.50 (b) 125 (c) 225 (d) 167.50

Q19. A person deposited Rs. 5,000 in a bank. Deposit was left to accumulate at 6% compounded quarterly for first five years & at 8% compounded semi-annually for the next eight years. The compound amount at the end of 13 years is:

(a) Rs. 12621.50 **(b) Rs. 12613.10**
(c) Rs. 13613.10 (d) None

Q20. Raja aged 40 wishes his wife Rani to have Rs. 40 lakhs at his death. If his expectation of life is another 30 yrs & he starts making equal annual investments commencing now at 3% CI p.a. How much should he invest annually?

(a) 84,077 **(b) 81,628** (c) 84,449 (d) 84,247

Feb 2008

Q21. 2 equal sums of money were lent at SI at 11 % p.a. for $3\frac{1}{2}$ years & $4\frac{1}{2}$ years respectively. If the difference in interests for two periods was Rs. 412.50, then each sum is:

(a) 3,250 (b) 3,500 **(c) 3,750** (d) 4,350

Q22. Anshul's father wishes to have Rs. 75,000 in bank account when his first college expenses begin. How much amount his father should deposit now at 6.5% compounded annually if Anshul is to start college in 8 years from now.

(a) 45,360 (b) 46,360 (c) 55,360 (d) 48,360.

Q23. A company may obtain a machine either by leasing it for 5 years (useful life) at an annual rent of Rs. 2,000 or by purchasing machine for Rs. 8,100. If company can borrow money at 18% p.a., which alternative is preferable?

(a) Leasing (b) Purchasing (c) Can't say (d) None

June 2008

Q24. In how much time would the simple interest on a certain sum be 0.125 times the principal at 10% p.a.?

(a) $1\frac{1}{4}$ years (b) $1\frac{3}{4}$ years (c) $2\frac{1}{4}$ years (d) None

Q25. Difference between CI & SI on a certain sum for 2 years @ 10% p.a. is Rs. 10. Find the sum:

(a) 1,010 (b) 1,095 **(c) 1,000** (d) 990

Q26. A machine worth Rs. 4,90,740 is depreciated at 15% on its opening value each year. When its value would reduce to Rs. 2,00,000:

(a) 5 years 6 months (b) 5 years 7 months
(c) 5 years 5 months (d) None.

Q27. A sinking fund is created for redeeming debentures worth Rs. 5 lacs at the end of 25 years. How much provision needs to be made out of profits each year provided sinking fund investments can earn interest at 4% p.a.?

(a) Rs. 12,006 (b) Rs. 12,040 (c) Rs. 12,039 (d) None

Dec 2008

Q28. Difference between SI & CI is Rs. 11 @10% for 2 years, then find the sum.

(a) Rs. 1,200 **(b) Rs. 1,100** (c) Rs. 1,000 (d) None

Q29. Future value of an ordinary annuity:

(a) $A(n, i) = A\left[\frac{(1+i)^n-1}{i}\right]$ (b) $A(n, i) = A\left[\frac{(1+i)^n+1}{i}\right]$
(c) $A(n, i) = A\left[\frac{1-(1+i)^n}{i}\right]$ (d) $A(n, i) = A\left[\frac{(1+i)^n-1}{i(1+i)^n}\right]$

Q30. Find the numbers of years in which a sum doubles itself at the rate of 8% per annum.

(a) $11\frac{1}{2}$ **(b) $12\frac{1}{2}$** (c) $9\frac{1}{2}$ (d) $13\frac{1}{2}$

June 2009

Q31. In how many years, a sum will become double at 5% p.a. compound interest.

(a) 14.0 years **(b) 14.3 years** (c) 14.2 years (d) None

Q32. The time by which a sum of money is 8 times of itself if it doubles itself in 15 years.

(a) 42 years (b) 43 years **(c) 45 years** (d) None

Q33. What is rate of simple interest if a sum of money amounts to Rs. 2,784 in 4 years & Rs. 2,688 in 3 years?

(a) 1%p.a. **(b) 4%p.a.** (c) 5% p.a. (d) 8% p.a.

Q34. A sum amount to Rs. 1,331 at a principal of Rs. 1,000 at 10% compounded annually. Find the time.

(a) 3.31 years (b) 4 years **(c) 3 years** (d) 2 years

Q35. Paul borrows Rs. 20,000 on condition to repay it with CI at 5% p.a. in annual instalment of Rs. 2,000 each. Find the number of years in which the debt would be paid off.

(a) 10 years (b) 12 years (c) 14 years **(d) 15 years**

Dec 2009

Q36. In how many years, a sum of Rs. 1,000 compounded annually @ 10%, will amount to Rs. 1,331?

(a) 6 years (b) 5 years (c) 4 years **(d) 3 years**

Q37. The CI for a certain sum @ 5% p.a. for 1st year is Rs. 25. SI for the same money @ 5% p.a. for 2 years will be.

(a) Rs. 40 **(b) Rs. 50** (c) Rs. 60 (d) Rs. 70

June 2010

Q38. At what % rate of CI will a sum of money become 16 times in 4 years, if interest compounded annually:

(a) r = 100% (b) r=10% (c) r = 200% (d) None

Q39. Find present value of an annuity of Rs. 1,000 payables at end of each year for 10 years. If rate of interest is 6% compounding p.a (given $(1.06)^{-10} = 0.5584$):

(a) Rs. 7,360 (b) Rs. 8,360 (c) Rs. 12,000 (d) None

Q40. If the simple interest on a sum of money at 12% p.a. for two years is Rs. 3,600. The compound interest on the same sum for two years at the-same rate is:

(a) 3,816 (b) 3,806 (c) 3,861 (d) 3,860

Dec 2010

Q41. The future value of an annuity of Rs. 5,000 is made annually for 8 years at interest rate of 9% compounded annually [Given that $(1.09)^8 = 1.99256$] is:

(a) 55,142.22 (b) 65,142.22
(c) 65,532.22 (d) 57,425.22

Q42. The effective annual rate of interest corresponding to nominal rate 6% p.a. payable half yearly is.

(a) 6.06% (b) 6.07% (c) 6.08% **(d) 6.09%**

Q43. Cost of Machinery is Rs. 1,25,000/- If its useful life is estimated to be 20 years & rate of depreciation of is 10% p.a., then scrap value of the Machinery is $[(0.9)^{20} = 0.1215]$

(a) 15,187 (b) 15,400 (c) 15,300 (d) 15,250

Q44. Mr. X invests 'P' amount at SI rate 10% & Mr. Y invests 'Q' amount at CI rate 5% compounded annually. At the end of two years both get the same amount of interest, then the relation between two amounts P & Q is given by:

(a) $P = \frac{41Q}{80}$ (b) $P = \frac{41Q}{40}$ (c) $P = \frac{41Q}{100}$ (d) $P = \frac{41Q}{200}$

June 2011

Q45. If the difference of S.I & C.I is Rs. 72 at 12% for 2 years. Calculate the amount.

(a) 8,000 (b) 6,000 **(c) 5,000** (d) 7,750.

Q46. If a SI on a sum of money at 6% p.a. for 7 years is equal to twice of SI on another sum for 9 years at 5% p.a. Ratio is:

(a) 2:15 (b) 7:15 **(c) 15:7** (d) 1:7

Q46. By mistake a clerk, calculated SI on principal for 5 months at 6.5% p.a. instead of 6 months at 5.5% p.a. If error in calculation was Rs. 25.40. Original sum of principal = ____.

(a) 60,690 **(b) 60,960** (c) 90,660 (d) 90,690

Dec 2011

Q48. If the Simple Interest on Rs. 1,400 for 3 years is less than the simple interest on Rs.1,800 for the same period by Rs. 80, then the rate of interest is

(a) 5.67% **(b) 6.67%** (c) 7.20% (d) 5.00%

Q49. Nominal rate of interest is 9.9% p.a. If interest is Compounded monthly, what will be the effective rate of interest (given $\left(\frac{4033}{4000}\right)^{12} = 1.1036$ (approx))?

(a) 10.36% (b) 9.36% (c) 11.36% (d) 9.9%

June 2012

Q50. The S.I. on a sum of money is $\frac{4}{9}$ of the principal and the no. of years is equal to the rate of interest per annum. Find the rate of interest per annum?

(a) 5% **(b) 20/3%** (c) 22/7% (d) 6%

Q51. SI on Rs. 2,000 for 5 months at 16% p.a. is ___.

(a) 133.33 (b) 133.26 (c) 134.00 (d) 132.09

Dec 2012

Q52. How much investment is required to yield an Annual income of Rs. 420 at 7% p.a. Simple interest.

(a) 6,000 (b) 6,420 (c) 5,580 (d) 5,000

Q53. X invests Rs. 90,500 in post office at 7.5% p.a. SI. While calculating the rate was wrongly taken as 5.7% p.a. The difference in amounts at maturity is Rs. 9,774. Find the period for which the sum was invested:

(a) 7 years (b) 5.8 years **(c) 6 years** (d) 8 years

June 2013

Q54. The difference between CI & SI on a certain sum of money for 2 years at 4% p.a. is Rs. 1. The sum (in Rs.) is:

(a) 625 (b) 630 (c) 640 (d) 635

Q55. Sum of money compounded annually becomes Rs. 1,140 in 2 years & Rs. 1,710 in 3 years. Find interest p.a.

(a) 30% (b) 40% **(c) 50%** (d) 60%

Dec 2013

Q56. On what sum difference between CI & SI for two years at 7% p.a. interest is Rs. 29.4

(a) 5,000 (b) 5,500 **(c) 6,000** (d) 6,500

Q57. In what time will a sum of money double itself at 6.25% p.a. simple interest?

(a) 5 years (b) 8 years (c) 12 years **(d) 16 years**

Q58. What principal will amount to Rs. 370 in 6 years at 8% p.a. at simple interest?

(a) Rs. 210 **(b) Rs. 250** (c) Rs.310 (d) Rs. 350

June 2014

Q59. Partners A & B together lent Rs. 3,903 at 4% p.a. interest compounded annually. After a span of 7 years, A gets the same amount as B gets after 9 years. Share of A in sum of Rs. 3,903 would have been:

(a) 1,875 (b) 2,280 **(c) 2,028** (d) 2,820

Q60. If a sum triples in 15 years at simple rate of interest, the rate of interest per annum will be:

(a) 13.0% **(b) 13.3%** (c) 13.5% (d) 18.0%

Q61. How much amount is required to be invested every year as to accumulate Rs. 6,00,000 at the end of 10 years, if interest is compounded annually @10% [$(1.1)^{10}$= 2.59374].
(a) 37,467 (b) 37,476 **(c) 37,647** (d) 37,674

Dec 2014

Q62. The future value of an annuity of Rs. 1,000 made annually for 5 years at the interest of 14% compounded annually is: (Given $(1.14)^5$ = 1.92541)
(a) 5,610 **(b) 6,610** (c) 6,160 (d) 5,160

Q63. A sum of money invested of compound interest doubles itself in four years. It becomes 32 times of itself at the same rate of compound interest in:
(a) 12 years (b) 16 years **(c) 20 years** (d) 24 years

Q64. A certain sum of money was invested at SI for 3 years. If the same has been invested at a rate that was 7% higher, the interest amount would have been Rs. 882 more. The amount of sum invested is:
(a) 12,600 (b) 6,800 **(c) 4,200** (d) 2,800

June 2015

Q65. A sum of money doubles itself in 8 years at SI. The number of years it would triple itself is __.
(a) 20 years (b) 12 years **(c) 16 years** (d) None

Q66. A sum of Rs. 44,000 is divided into 3 parts such that the corresponding interest earned after 2 years, 3 years & 6 years may be equal. If rates of SI are 6% p.a., 8% p.a. & 6% p.a. respectively, then the smallest part of the sum will be:
(a) Rs. 4,000 **(b) Rs. 8,000** (c) Rs. 10,000 (d) 12,000

Dec 2015

Q67. Suppose your parent decides to open a PPF account in a bank towards your name with Rs. 10,000 every year starting from today for next 15 years. When you receive & get 8.5% p.a. interest rate compounded annually. What is the present value of this annuity? (Give answer in Rs. without any fraction.) (Given P (15,0.085) = 8.304236576)
(a) 83,042 (b) 90,100 **(c) 93,042** (d) 73,042

Q68. In how many years will a sum of money become four times at 12% p.a. simple interest?
(a) 18 years (b) 21 years **(c) 25 years** (d) 28 years

Q69. The simple interest for a certain sum for 2 years at 10% per annum is Rs. 90. The corresponding CI is (In Rs.):
(a) 99 (b) 95.60 **(c) 94.50** (d) 108

June 2016

Q70. Mr. X bought an electronic item for Rs. 1,000. What would be future value of same item after 2 years, if value is compounded semi-annually at 22% p.a?
(a) 1488.40 **(b) 1518.07** (c) 2008.07 (d) 2200.00

Q71. If an amount is kept at SI, it earns an interest of Rs. 600 in first 2 years but when kept at CI it earns an interest of Rs. 660 for same period, then rate of interest & principal amount respectively is:
(a) 20%, Rs. 1,200 (b) 10%, Rs. 1,200
(c) 20%, Rs. 1,500 (d) 10%, Rs. 1,500

Dec 2016

Q72. The sum invested at 4% p.a. compounded Semi-annually amounts to Rs. 7,803 at the end of one year, is:
(a) Rs. 7,000 **(b) Rs. 7,500**
(c) Rs. 7,225 (d) Rs. 8,000

Q73. A CI on a sum for 2 years is Rs. 30 more than the SI at the rate of 5% p.a. then the sum is:
(a) 11,000 (b) 13,000 **(c) 12,000** (d) 15,000

Q74. A person lends Rs. 6,000 for 4 years & Rs. 8,000 for 3 years at SI. If he gets Rs. 2,400 as total interest, r =____
(a) 5% (b) 4% (c) 6% (d) 7%

June 2017

Q75. Future value of an annuity of Rs. 1,500 made annually for 5 yrs @10% compounded annually is ($(1.1)^5$ = 1.61051):
(a) Rs. 9517.56 **(b) Rs. 9157.65**
(c) Rs. 9715.56 (d) Rs. 9175.65

Q76. The difference between the CI & SI at 10% p.a. for 4 years on Rs. 10,000 is Rs. _____.
(a) 650 (b) 640 **(c) 641** (d) 600

Q77. How much amount is required to be invested every year as to accumulate Rs. 7,96,870 at end of 10 years, if interest compounded annually @10%, A (10, 0.1) = 15.9374?
(a) 40,000 (b) 4,50,000 (c) 48,000 **(d) 50,000**

Dec 2017

Q78. If CI on any sum at the rate of 5% for two years is ₹ 512.50 then the sum would be:
(a) 3,000 (b) 4,000 **(c) 5,000** (d) 6,000

Q79. The effective rate of interest equivalent to the nominal rate of 7% converted monthly:
(a) 7.26% **(b) 7.22%** (c) 7.02% (d) 7.20%

June 2018

Q80. Mr. X invest ₹ 10,000 every year starting from today for next: 10 years. suppose interest rate is 8% pa compounded annually. Calculate future value of the annuity.

(a) 1,56,454.88 (b) 1,56,554.88
(c) 1,44,865.625 (d) None of these

Q81. How much amount is required to be invested every year so as to accumulate ₹ 3,00,000 at the end of 10 years, if interest is compounded annually at 10% ?

(a) 18823.65 (b) 18,000 (c) 18,828.65 (d) 18,882.65

Q82. If ₹ 1,000 be invested at interest rate of 5% and the interest be added to the principal every 10 years, then the number of years in which it will amount to ₹ 2,000 is:

(a) $16\frac{2}{3}$ years (b) $6\frac{1}{4}$ years (c) 16 years (d) $6\frac{2}{3}$ years

Q83. A person borrows ₹ 5,000 for 2 years at 4% per annual simple interest. He immediately lends to another person at $6\frac{1}{4}$%. p.a for 2 years find his gain in the transaction for year:

(a) 112.50 **(b) 225** (c) 125 (d) 107.50

Q84. If an amount is kept at S.I. it earns an interest of ₹ 600 in first two years but when kept at compound interest it earns an interest of ₹ 660 for the same period, then the rate of interest and principal amount respectively are:

(a) 20%, ₹ 1,200 **(b) 20%, ₹ 1,500**
(c) 10%, ₹ 1,200 (d) 10%, ₹ 1,500

Q85. The future value of an annuity of ₹ 1,000. made annually for 5 years at the interest of 14% compounded annually is: Given $(1.14)^5 1.92541)$

(a) 5,610 **(b) 6,610** (c) 6,160 (d) 5,160

Q86. In simple interest, a certain sum becomes Rs. 97,920 in 3 years & Rs. 115200 in 5 years, then the rate of interest is:

(a) 10% **(b) 12%** (c) 11.2% (d) 13.6%

Q87. Difference between CI & SI for 3 years is Rs. 912 @4% p.a., the principal is

(a) 187550 (b) 187000 (c) 185700 **(d) 187500**

Q88. Rs.2000 is invested at the end of each month in account paying interest 6% per compounded monthly, what is the future value of this annuity after 10th payment?

(a) 20156 (b) 20356 (c) 20256 **(d) 20456**

Dec 2018

Q89. If ₹ 10,000 is invested at 8% per year compounded quarterly, then the value of the investment after 2 years is: [given $(1 + 0.02)^8 = 1.171659$]

(a) ₹ 11,716.59 (b) ₹ 10,716.59
(c) ₹ 117.1659 (d) None of the above

Q90. A bank pays 10% rate of interest compounded annually. A sum of ₹ 400 is deposited in the bank. The amount at the end of 1 year will be

(a) ₹ 440 (b) ₹ 439 (c) ₹ 441 (d) ₹ 442

Q91. A certain money doubles itself in 10 years when deposited on SI. It would triple itself in

(a) 20 years (b) 15 years (c) 25 years (d) 30 years

Q92. A man deposited ₹ 8,000 in a bank for 3 years at 5%p.a. CI, after 3 years he will get

(a) ₹ 8,800 **(b) ₹ 9,261** (c) ₹ 9,200 (d) ₹ 9,000

Q93. If in two years' time a principal of ₹ 100 amounts to ₹ 121 when the interest at the rate of r% is compounded annually, then the value of r will be

(a) 10.5% **(b) 10%** (c) 15% (d) 14%

Q94. A certain sum of money Q was deposited for 5 year and 4 months at 4.5% simple interest and amounted to ₹ 248, then the value of Q is

(a) ₹ 200 (b) ₹ 210 (c) ₹ 220 (d) ₹ 240

Q95. If CI on a sum for 2 years at 4% per annum is ₹ 102, then the simple interest on the same sum for the same period at the same rate will be

(a) ₹ 99 (b) ₹ 101 **(c) ₹ 100** (d) ₹ 95

Q96. A man invests an amount of ₹ 15,860 in the names of his three sons A, B and C in such a way that they get the same interest after 2,3 and 4 years respectively. If the rate of interest is 5%, then the ratio of amount invested in the name of A, B and C is:

(a) 6:4:3 (b) 3:4:6 (c) 30:12:5 (d) None

Q97. If the difference between the CI compounded annually & SI on a certain amount at 10% p.a. for two years is ₹ 372, then the principal amount is

(a) 37,200 (b) 37,000 (c) 37,500 (d) None

Q98. What is the net present value of piece of property which would be valued at ₹ 2 lakh at the end of 2 years? (Annual rate of increase = 5%)

(a) 1.81 lakh (b) 2.01 lakh (c) 2.00 lakh (d) None

Q99. The effective rate of interest for one year deposit corresponding to a nominal 7% rate of interest per annum convertible quarterly is

(a) 7% (b) 7.5% (c) 7.4% **(d) 7.18%**

Q100. How much will ₹ 25,000 amount to in 2 years at CI if the rates for the successive years are 4% & 5% per year

(a) 27,300 (b) 27,000 (c) 27,500 (d) 27,900

Q101. ₹ 8,000/- at 10% p.a. interest compounded half yearly will become at the end of one year
(a) 8,800 **(b) 8,820** (c) 8,900 (d) 9,600

Q102. The value of furniture depreciates by 10% a year, it the present value of the furniture in an office is ₹ 21,870, calculate the value of furniture 3 years ago
(a) 30,000 (b) 35,000 (c) 40,000 (d) 50,000

June 2019

Q103. The certain sum of money became ₹ 692 in 2 yrs and ₹ 800 in 5 yrs then the principle amount is _____
(a) ₹ 520 **(b) ₹ 620** (c) ₹ 720 (d) ₹ 820

Q104. A sum of money amount to ₹ 6,200 in 2 years & ₹ 7,400 in 3 years as per S.I. then the principal is
(a) ₹ 3,000 (b) ₹ 3,500 **(c) ₹ 3,800** (d) None

Q105. A sum was invested for 3 years as per CI & rate of interest, for 1st year is 9%, 2nd year is 6% & 3rd year is 3% p.a. respectively. Find sum if amount in 3 years is ₹ 550?
(a) ₹ 250 (b) ₹ 300 **(c) ₹ 462.16** (d) ₹ 350

Q106. $P = ₹\,5{,}000 R = 15\% T = 4^{1/2}$ then I will be
(a) ₹ 3,375 (b) ₹ 3,300 (c) ₹ 3,735 (d) None

Q107. The effective rate of interest does not depend upon
(a) Amount of Principal (b) Amount of Interest
(c) Number of Conversion Periods (d) None of these

Q108. A person wants to lease out a machine costing ₹ 5,00,000 for 10 years. It has fixed a rental of ₹ 51,272 p.a. payable annually starting from end of 1st year. Suppose rate of interest is 10% p.a. compounded annually on which money can be invested. To whom this agreement is favourable?
(a) Favour of Lessee (b) Favour of Lessor
(c) Not for both (d) Can't be determined

Q109. Let a person invest a fixed sum at the end of each month in an account paying interest 12% p.a. compounded monthly. If future value of this annuity after the 12th payment is ₹ 55,000 then amount invested every month is
(a) 4,837 (b) 4,637 **(c) 4,337** (d) 3,337

Q110. If $Pi^2 = ₹\,96$, & $R = 8\%$ compounded annually, P =
(a) 14,000 **(b) 15,000** (c) 16,000 (d) 17,000

Q111. Determine the present value of perpetuity of ₹ 50,000 per month @ rate of interest 12% p.a. is _____
(a) ₹ 45,00,000 **(b) ₹ 50,00,000**
(c) ₹ 55,00,000 (d) ₹ 60,00,000

Q112. In SI if the principal is ₹ 2,000 & the rate & time are the roots of the equation $x^2 - 11x + 30 = 0$ then SI is:
(a) ₹ 500 **(b) ₹ 600** (c) ₹ 700 (d) ₹ 800

Dec 2019

Q113. A man invests ₹ 12,000 at 10% p.a. and another sum of money at 20% p.a. for one year. The total investment earns at 14% p.a. simple interest the total investment is:
(a) 8,000 **(b) 20,000** (c) 14,000 (d) 16,000

Q114. The difference in SI of a sum invested of 1,500 for 3 years is 18. The difference in their rates is:
(a) 0.4 (b) 0.6 (c) 0.8 (d) 0.10

Q115. Find effective rate of interest on 10,000 on which interest is payable half yearly at 5% p.a.
(a) 5.06% (b) 4% (c) 0.4% (d) 3%

Q116. Find the effective rate of interest at 10% p.a. when interest is payable quarterly.
(a) 10.38% (b) 5% (c) 5.04% (d) 4%

Q117. What will be the population after 3 years when present population is 25,000 and population increases at the rate of 3% in I year, at 4% in II year and at 5% in III year?
(a) 28,119 (b) 29,118 (c) 27,000 (d) 30,000

Q118. The value of scooter is 10,000 find its value after 7 years if rate of depreciation is 10% p.a.
(a) 4,782.96 (b) 4,278.69 (c) 42,079 (d) 42,000

Q119. $SI = 0.125P$ at 10% p.a. Find time.
(a) 1.25 years (b) 25 years (c) 0.25 years (d) None

Q120. Scrap value of a machine valued at 10,00,000, after 10 years within depreciation at 10% p.a.:
(a) 3,48,678.44 (b) 3,84,679.45
(c) 4,00,000 (d) 3,00,000

Q121. The difference between CI & SI for 2 years, is 21. If rate of interest is 5% find principle
(a) 8,400 (b) 4,800 (c) 8,000 (d) 8,200

Q122. Present value of a scooter is 7,290 if its value decreases every year by 10% then its value before 3 years =
(a) 10,000 (b) 10,500 (c) 20,000 (d) 20,500

Q123. If the interest of money is equal to its one by nine, the rate of interest & time are equal, then find r.
(a) 3.33% (b) 4.5% (c) 3% (d) 3.5%

Q124. 1/7 of a money is deposited at 4% p.a., ½ of a money deposited at 5% p.a. & the remaining at the rate of 6%, then total interest gained 730 find deposit amount.
(a) 14,000 (b) 21,550 (c) 21,000 (d) 21,280

Q125. In what time will a sum of Rs. 800 will amount to Rs. 882 at 5% p.a. compounded annually
(a) 4 years (b) 3 years **(c) 2 years** (d) 1 years

Q126. Find effective rate of interest if an amount of Rs. 1000 deposited for 1 year at 10%p.a. compounded semi-annually.
(a) 10.25% (b) 10.10% (c) 10.20% (d) 10.5%

Q127. If population of a town is 25000 & it grows at the rate of 4%, 5% & 8 % in year 1, 2 & 3 respectively. Find population after 3 years?
(a) 29,484 (b) 29,844 (c) 29,448 (d) 28,944

Q128. An amount of Rs. 35000 with the rate of interest 7% p.a., it is compounded on a monthly basis, then tell the effective rate of interest.
(a) 7.22% (b) 7.64% (c) 7.0% (d) 7.5%

Q129. Determine present value of perpetuity Rs. 10 per month for infinite period at effective rate of 14% p.a.
(a) 857 (b) 657 (c) 957 (d) 757

Q130. Find the future value of an annuity of Rs. 1000 made annually for 7 years at interest rate of 14% compounded annually. Given that (1.14)7=2.5023.
(a) 10731.71 (b) 10631.71 (c) 10831.71 (d) None

Dec 2020

Q131. On what sum will the CI at 5% per annum for 2 year compounded annually be 3,280.
(a) 32,000 (b) 16,000 (c) 48,000 (d) 64,000

Q132. An amount becomes 5100.5 & 5203 after 2nd & 4th years respectively at 1% of interest p.a. compounded annually. Thus, values of P & R are:
(a) 4,000 and 1.5 **(b) 5,000 and 1**
(c) 6,000 and 2 (d) 5,500 and 3

Q133. A certain sum invested at 4% per annum compounded semi- annually amounts to 1,20,000 at the end of one year. Find the sum:
(a) 1,15,340 (b) 1,10,120 (c) 1,12,812 (d) 1,13,113

Q134. Find the future value of annuity of 1,000 made annually for 7 years at interest rate of 14% compounded annually. Given that $1.14^7 = 2.5023$
(a) 10,730.7 (b) 5,365.35 (c) 8,756 (d) 9,892.34

Q135. Find present value of 1,00,000 to be required after 5 years if the interest rate be 9%. Given that $1.09^5 = 1.5386$.
(a) 78,995.98 **(b) 64,994.15**
(c) 88,992.43 (d) 93,902.12

Q136. A five-year annuity due has periodic cash flow of 100 each year. If the interest rate is 8% the future value of this annuity is given by:
(a) (100) × (future value at 8% for 5 yrs) × (0.08)
(b) (100) × (future value at 8% for 5 yrs) × (1 − .08)
(c) (100) × (future value at 8% for 5 yrs) × (1 + 0.08)
(d) (100) × (future value at 8% for 5 yrs) × (1/0.08)

Q137. A person decides to invest 1,25,000 per year for the next five years in an annuity which gives 5% per annum compounded annually. What is the approx future value? (use $1.05^5 = 1.2762$, if needed)
(a) 1,59,535 **(b) 6,90,500**
(c) 5,90,704 (d) 3,59,535

Q138. Find the compound interest if an amount of 50,000 is deposited in a bank for one year at the rate of 8% per annum compounded semiannually.
(a) 3,080 **(b) 4,080** (c) 5,456 (d) 7,856

Q139. Which of the following statements is True? (assume that the yearly cash flow? Are identical for both annuities)
(a) The present value of an annuity due is greater than the present value of an ordinary annuity
(b) The present value of an ordinary annuity is greater than the present value of an annuity due
(c) The future value of an ordinary annuity is greater than the future value of an annuity due
(d) The future value of an annuity due is equal to future value of an ordinary annuity.

Q140. 2,500 is paid every year for 10 years to pay off a loan. What is the loan amount if interest rate be 14% per annum compounded annually?
(a) 15,847.90 **(b) 13,040.27**
(c) 14,674.21 (d) 16,345.11

Q141. An amount is lent at a nominal rate of 4.5% per annum compounded quarterly. What would be the gain in rupees over when compounded annually?
(a) 0.56 (b) 0.45 **(c) 0.076** (d) 0.85

Q142. What sum of money will produce 42,800 as an interest in 3 years and 3 months at 2.5% p.a. simple interest?
(a) 3,78,000 **(b) 5,26,769** (c) 4,22,000 (d) 2,24,000

Q143. The ratio of principal & CI value for three years (compounded annually) is 216 : 127. The rate of interest is:
(a) 0.1777 (b) 0.1567 **(c) 0.1666** (d) 0.1587

Q144. A stock pays annually an amount of 10 from 6th year onwards. What is the present value of the perpetuity, if the rate of return is 20% ?
(a) 20.1 (b) 19.1 (c) 21.1 (d) 22.1

Q145. Suppose you deposit Rs. 900 per month into an account that pays 14.8% interest compound monthly. How much money will you get after 9 months?
(a) 9000 (b) 9200 **(c) 8511** (d) 1000

Jan 2021

Q146. A certain sum amounted to 575 at 5% in a time in which 750 amounted to 840 at 4%. If rate of interest is simple, find the sum-
(a) 525 (b) 550 (c) 515 **(d) 500**

Q147. Find the amount of CI, if an amount of 50,000 is deposited in a bank for one year at the rate of 8% p.a. compounded semiannually

(a) 3,080 **(b) 4,080** (c) 5,456 (d) 7,856

Q148. The population of a town increase by 2% of the population at the beginning of the year. The number of year by which the total increases in population would be 40% is:

(a) 7 years (b) 10 years **(c) 17 years** (d) 19 years

Q149. Find the future value of annuity of 1,000 made annually for 7 years at interest rate of 14% compounded annually (Given that $1.14^7 = 2.5023$)

(a) $10,730.7$ (b) 5,365.35 (c) 8,756 (d) 9892.34

Q150. Two equal amounts of money deposited in two banks each at 15% p.a. fix 3.5 year in the bank & fix 5 years in the either. The difference between the interest amount from the bank in 144. Find sum

(a) 620 **(b) 640** (c) 820 (d) 840

Q151. The SI on sum at 4% p.a. for 2 years is 80. Find the CI on the came sum for the same period.

(a) 81.60 (b) 80.80 (c) 83.20 (d) 82.30

Q152. Which is a better investment 9% p.a. compounded quarterly or 9.1% p.a. simple interest?

(a) 9% compounded (b) 9.1% S.T.
(c) Both are same (d) Cannot be said

Q153. Effective rate of interest corresponding to a nominal rate of 7% p.a. compounded quarterly is

(a) 7.5% (b) 7.6% (c) 7.7% **(d) 7.18%**

Q154. Assuming that the discount rate is 7% p.a. how much would pay to receive 200 growing at 5% annually for ever?

(a) 2,500 (b) 5,000 (c) 7,500 **(d) $10,000$**

Q155. A man invested 1/3rd of his capital at 7% 1/4th at 8% & remainder at 10%. If annual income is 561. Capital is -

(a) 4,400 (b) 5,500 **(c) 6,600** (d) 5,800

Q156. A sum of money is lent at C.I. Rate 20% p.a. 2 years. It would fetch 482 more if the interest is compounded half yearly. The sum is:

(a) 19,800 (b) 19,900 **(c) 20,000** (d) 20,100

Q157. 800 is invested at the end of each month in an account paying interest 5% per year compounded monthly. What is the future value of this annually after 10th payment?

(a) 4,444 (b) 8,756 (c) 3,491 **(d) $8,151.67$**

Q158. What 'i' denote the actual rate of interest in decimal, and n denote the number of conversion periods, the formula for computing the effective rate of interest E is given by.

(a) $(1+i)^n$ **(b) $(1+i)^n - 1$**
(c) $1-(1+i)^n$ (d) $(1+i)^{-n}$

Q159. Present value of an Annuity immediate is the same a

(a) Annuity regular for $(n-1)$ year plus the initial receipt in the beginning of the period.
(b) Annuity regular for $(n-1)$ years
(c) Annuity regular for $(n+1)$ years
(d) Annuity regular for $(n+1)$ years plus the initial receipt in the beginning of the period

July 2021

Q160. Desired future value after 5 years with 18% interest rate is 1,50,000, then present value=? ($(1.18)^5 = 2.2877$) ?

(a) 63,712 **(b) 65,568** (c) 53,712 (d) 41,712

Q161. The effective rate of return for 24% per annum convertible monthly is given as:

(a) 24% **(b) 26.82%** (c) 18% (d) 24.24%

Q162. What is the CI (in) on a sum of 12,600 for $1^{1/2}$ years at 20% p.a. if the interest is compounded half yearly

(a) 4,271 **(b) 4,171** (c) 4,711 (d) 4,117

Q163. If discount rate is 14% p.a., then how much company has to pay to receive 280 growing at 9% p.a. forever?

(a) 5,600 (b) 2,800 (c) 1,400 (d) 4,200

Q164. If the nominal rate of growth is 17% & inflation is 9% for the five years. Let P be the GDP amount at the present year then the projected real GDP after 6 years is:

(a) 1.587P (b) 1.921P (c) 1.403P (d) 2.51P

Q165. A sum of 7,500 amounts to 9,075 at 10% p.a., interest being compounded yearly in a certain time. SI on same sum for the same time and the same rate is:

(a) 1,000 (b) 1,250 (c) 1,800 **(d) 1,500**

Q166. A loan of 1,02,000 is to be paid back in 2 equal annual instalments. If interest is 4% p.a, compounded annually, then total interest charged under this instalment plan is:

(a) 6,160 (b) 8,120 (c) 5,980 (d) 7,560

Q167. If a person bought a house by paying 45,00,000 down payment & 80,000 at the end of each year till the perpetuity. Assuming the interest as 16% the present value of house =?

(a) 47,00,000 (b) 45,00,000
(c) 57,80,000 **(d) $50,00,000$**

Q168. Let the operating profit of a manufacturer for five years is given as:

Years	1	2	3	4	5	6
Operating profit (in lacs)	90	100	106.4	107.14	120.24	157.34

Then the operating profit of Compound Annual Growth Rate (CAGR) for year 6 with respect to year 2 is given that:

(a) 9% **(b) 12%** (c) 11% (d) 13%

Q169. If the cost of capital be 12% p.a., then the net present value (in nearest) from the given cash flow is given as:

Years	0	1	2	3
Operating profit (in 000')	(100)	60	40	50

(a) 31048 (b) 34185 **(c) 21048** (d) 24187

Q170. A certain sum amounts to 15,748 in 3 years at SI at r% p.a. The same sum amounts to 16,510 at (r + 2)% p.a. SI in the same time. What is the value of r?

(a) 10% **(b) 8%** (c) 12% (d) 6%

Q171. What is the difference between the SI & the CI on a sum of 8,000 for $2\frac{2}{5}$ years @10% p.a. compounded yearly?

(a) 136.12 (b) 129.50 (c) 151.75 (d) 147.20

Q172. The future value of annuity of 2,000 for 5 years at 5% compounded annually is given as:

(a) 51,051 (b) 21,021 **(c) 11,051** (d) 61,254

Q173. A sum of x amounts to 27,900 in 3 years & to 41,850 in 6 years at a certain rate p.a., when interest is compounded yearly. The value of x is:

(a) 16,080 **(b) 18,600** (c) 18,060 (d) 16,800

Q174. An investor is saving to pay off an obligation of Rs. 15250 which will be due in Seven years, if the investor is earning 7.5% SI p.a., he must deposit Rs. _____.

(a) 11,000 **(b) 10,000** (c) 9,000 (d) 8,000

Dec 2021

Q175. Mr. X wants to accumulate 50,00,000 at end of 10 years. Then how much amount is required to be invested every year if interest is compounded annually at 10% ? (Given that $P(10,0.10) = 15.9374298$)

(a) 3,13,726.87 (b) 4,13,726.87
(c) 3,53,726.87 (d) 4,53,726.87

Q176. Rahul invested 70,000 in a bank @6.5% p.a. SI. He received 85,925 after the end of term. Find out the period for which sum was invested by Rahul.

(a) 2 years (b) 3 years **(c) 3.5 years** (d) 2.5 years

Q177. Company needs 10,000 in 5 years to replace an equipment. How much should be invested now @8% p.a. in order to provide for this equipment?

(a) 6,000 **(b) 6,805** (c) 10,000 (d) 11,000

Q178. R needs to pay 5,00,000 in 10 years. He invested a sum in a scheme @9% compounded half-yearly. How much amount he invested? ($1.046^{20} = 2.41171$)

(a) 3,07,321 (b) 2,70,321 **(c) 2,07,321** (d) 3,40,321

Q179. An amount is lent at R% simple interest for R years and the simple interest amount was one-fourth of the principal amount. Then R is _____

(a) 5 (b) 6 (c) $5^{1/2}$ (d) $6^{1/2}$

Q180. A sum of money is put at 20% compound interest rate p.a. At which year the aggregated amount just exceeds the double of the original sum?

(a) 6 (b) 5 **(c) 4** (d) 3

Q181. Present value of an annuity of 25,000 to be received after 10 years at 6% p.a. compounded annually is _____ ($1.06^5 = 1.33823$)

(a) 15,960 **(b) 13,960** (c) 11,960 (d) 17,960

Q182. A sum of money in SI doubles itself in 7 years. Number of years it would triple itself is

(a) 18 (b) 16 **(c) 14** (d) 12

Q183. Simple interest on a sum of money is amount to Rs. 59000 in 3 years & Rs. 62000 in 4 years at same rate of interest. What is the principal amount & rate of interest?

(a) Rs. 30,000, 6% (b) Rs. 45,000, 5.5%
(c) Rs. 55,000, 5% (d) Rs. 52,000, 7%

Q184. Cost of laptop is Rs. 110000 & its value depreciates @12% p.a. its life is 6 years, its scrap value is __ times its cost.

(a) 0.44 (b) 0.42 **(c) 0.45** (d) 0.48

Q185. If CI earned at 'i' % p.a. in n years is to be earned at 's' % SI rate for n years, then s =_____.

(a) i **(b)** $\frac{(i+i)^n-1}{n}$ (c) $\frac{1-(i+i)^n}{n}$ (d) $i\frac{1}{n}$

June 2022

Q186. 2,500 is paid every year for 10 years to pay off a loan. What is the loan amount if interest rate be 14% per annum compounded annually?

(a) 15,841.90 **(b) 13,040.27**
(c) 14,674.21 (d) 14,010.90

Q187. 800 is invested at the end of each month in an account paying interest 6% per year compounded monthly. What is the future value of this annuity after 10^{th} payment?

(a) 8,176 (b) 12,044 (c) 4,040 (d) 12,000

Q188. In how much time a sum of amount doubles at simple interest at 12.5% rate?

(a) 7 year **(b) 8 year** (c) 9 year (d) 10 year

Q189. Anshika took a loan of 1,00,000@8% for 5 year. What amount will she pay if she wants to pay the whole amount in five equal installments?

(a) 25,045.63 (b) 26,045.68 (c) 28,045.50 (d) None

Q190. Ankit invests 3,000 at the end of each quarter receiving interest @ 7% p.a. for 5 years. What amount will be received at the end of the period?

(a) 71,200.20 **(b) 71,104.83**
(c) 73,204.83 (d) None

Q191. Effective rate of interest corresponding a nominal rate of 7% p.a. convertible quarterly is:
(a) 7% (b) 7.5% (c) 5% **(d) 7.18%**

Q192. Assuming that the discount rate is 7% p.a. How much would you pay to receive 200, growing at 5% p.a forever?
(a) 2,500 (b) 5,000 (c) 7,500 **(d) 10,000**

Q193. A company establishes a sinking fund to provide for the payment 2,00,000 debt maturing in 20 years. Contribution to the fund is to be made at the end of every year. Find amount of each deposit if interest is 10% p.a.?
(a) 3,592.11 **(b) 3,491.92** (c) 3,392.11 (d) None

Q194. CAGR of initial value of an investment of 15,000 & final value of 25,000 in 3 years is:
(a) 19% **(b) 18.56%** (c) 17.56% (d) 17%

Q195. ABC Ltd. wants to lease out an asset costing 3,60,000 for a five-year period. It has a fixed rental of 1,05,000, per annum payable annually starting from the end of first year. Suppose rate of interest is 14% per annum compounded annually on which money can be invested by the company. Is this agreement favourable to the company.
(a) Yes (b) No (c) Can't Say (d) None

Q196. A person invested 15000 in a mutual fund & value of investment at time of redemption was 25000. If CAGR for this investment is 8.88%, Calculate time period for which the amount was invested?
(a) 6 (b) 7.7 (c) 5.5 (d) 7

Q197. Madhu takes a loan of 50,000 from XYZ Bank. The rate of interest is 10% pr annum. The first installment will be paid at the end of year 5. Determine equal installments. If Madhu wishes to repay amount in five installments.
(a) 19,630 (b) 19,430 **(c) 19,310** (d) 19,510

Dec 2022

Q198. Machine worth 4,90,740 is depreciated at 15% on its opening value each year. When its value would reduce to 2,00,750 ?
(a) 5 years 5 months **(b) 5 years 6 months**
(c) 5 years 7 months (d) 5 years 8 months

Q199. If 64 amounts to 83.20 in 2 years, what will 86 Amount to in 4 years at the same rate percent per annum?
(a) 127.60 (b) 147.60 **(c) 145.34** (d) 117.60

Q200. A farmer borrowed 3,600 at the rate of 15% simple interest per Annum. At the end of 4 years, he cleared this account by paying 4,000 and a cow. The cost of the cow is:
(a) 1,000 (b) 1,200 (c) 1,550 **(d) 1,760**

Q201. How much amount is required to be invested every year so as to accumulate 5,00,000 at the end of 12 years if interest is compounded annually at 10%{ Where $A(12,0.1) = 21.384284$}
(a) 23381.65 (b) 24385.85 (c) 26381.65 (d) 28362.75

Q202. The effective annual rate of interest corresponding to a normal rate of 6% p.a. payable half yearly is:
(a) 6.06%. (b) 6.07% (c) 6.08% **(d) 6.09%**

Q203. 10 years ago the EPS of ABC Ltd. was 5 share. Its EPS for this year is 22. Compute at what rate, EPS of company grow annually?
(a) 15.97% (b) 16.77% (c) 18.64% (d) 14.79%

Q204. Raju invests 20,000 every year in a deposit scheme starting from today for next 12 years. Assuming that interest rate on this deposit is 7% p.a. compounded annually. What will be the future value of this annuity? Given that $(1 + 0.07)^{12} = 2.25219159$.
(a) 540,526 **(b) 382,813** (c) 643,483 (d) 357,769

Q205. Mr. A invested 10,000 every year for next 3 years at interest rate of 8 percent p.a. compounded annually. What is future value of the annuity?
(a) 32,644 **(b) 32,464** (c) 34,264 (d) 36,442

Q206. Mr. Prakash invested money in two schemes 'A' & 'B' offering CI at the rate of 8% & 9% p.a. respectively. If total amount of interest accrued through these two schemes together in two years was 4,818.30 & total amount invested was 27,000. What was the amount invested in schemes 'A'?
(a) 12,000 (b) 12,500 (c) 13,000 (d) 13,500

Q207. A sum of money invested of compound interest doubles itself in four years. In how many years it become 32 times of itself at the same rate of compound interest?
(a) 12 Years (b) 16 Years **(c) 20 Years** (d) 24 Years

Q208. The difference between CI & SI on an amount of 15,000 for 2 years is 96. What is the rate of interest p.a?
(a) 9% **(b) 8%** (c) 11% (d) 10%

Q209. 5,000 is invested every month end in an account paying interest @ 12% per annum compounded monthly. What is the future value of this annuity just after making 11^{th} . payment? (Given that $(1.01)^{11} = 1.1156$)
(a) 57,800 (b) 56,100 (c) 56,800 (d) 57,100

Q210. A sum of money doubles itself in 4 years at certain CI rate. In how many years this sum will become 8 times at the same compound interest rate?
(a) 12 Years (b) 14Years (c) 16 Years (d) 18 Years

Q211. Sinking fund factor is reciprocal of:
(a) Present value interest factor of a single cash flow
(b) Present value interest factor of an annuity
(c) Future value interest factor of an annuity
(d) Future value interest factor of a single cash flow.

Q212. A company creates a sinking fund of Rs. 2,00,000 in a bank for 15 years. Bank offers interest rate at 6% p.a. the yearly payment to be made by company is
(a) 8945 (b) 8145 (c) 9345 (d) 9645

June 2023

Q213. The Nominal rate of interest is 10% per annum. The interest is compounded quarterly. The effective rate of interest per annum will be.
(a) 10% (b) 10.40% (c) 10.25% **(d) 10.38%**

Q214. A car is available for 4,98,200 cash payment on 60,000 cash down payment followed by 3 equal annual instalments of the rate of interest charged is 14% p.a. compounded yearly. Total interest changed is instalment plans is (Given P (3,0.14) = 2.32163)
(a) 1,46,314 (b) 1,46,137 **(c) 1,28,040** (d) 1,58,040

Q215. If the discount rate is 10% per annum. How much amount would you pay to receive 2,500 growing at 8% annually forever?
(a) 1,25,000 (b) 2,50,000 (c) 1,50,000 (d) 2,00,000

Q216. The compound interest on 15,625 for 9 months at 16% per annum compounded quarterly is
(a) 1,851 (b) 1,941 **(c) 1,951** (d) 1,961

Q217. Mr. Sharad got his retirement benefit amounting to 50,00,000. He wants to receiver a fixed monthly sum of amount for his rest of life, starting after 1 month & there after he want to pass on same to future generation. He expects to earn an interest of 9% compounded annually. Determine how much perpetuity amount he will receive every month?
(a) 9,500 (b) 38,500 **(c) 37,500** (d) 36,600

Q218. Jonny wants to have 2,00,000 in his saving account after three years. Rate of interest offered by bank is 8% p.a. compounded annually. How much should he invest today to achieve his target amount?
(a) 1,47,489.10 **(b) 1,58,766.44**
(c) 1,71,035.59 (d) 1,84,417.96

Q219. Suppose you have decided to make a SIP in a mutual fund with 1,00,000 p.a. from today for next 10 years @10% p.a. compounded annually. What is the future value of this annuity? Given $1.1^{10} = 2.59374$
(a) 17,35,114 (b) 17,53,411
(c) 17,35,411 **(d) 17,53,114**

Q220. A machine depreciates at 10% of its value at beginning of a year. The cost & scrap value realized at the time of sale being 23,240 & 9,000 respectively. For how many years the machine was put to use?
(a) 7 (b) 8 **(c) 9** (d) 10

Q221. Mr. Ram invested a total of 1 lakh in two bags for the fixed parcel. the first bank fields @9% p.a. & 2nd bank field 11% p.a. If the total interest at the end of one year is 9.75% p.a.. then the amount invested in these bank respectively?
(a) 52,500, 47,500 **(b) 62,500, 37,500**
(c) 57,500, 42,500 (d) 67,500, 32,500

Q222. A company wants to replace its existing warm out machinery in 10 years the expected cost of machine would be 10 Lakh. If the management create a sinking fund. How much provision needs to be made each year. Which can care @10% compound annually. (Given A(10,0.1) = 15.937425
(a) 74,625 (b) 72,514 **(c) 62,745** (d) 67,245

Q223. The difference between compound interest and simple interest on a certain sum of money invest for three years at 6% p.a. is 11016. The principal is.
(a) 3,000 (b) 3,700 (c) 12,000 **(d) 10,000**

Q224. The population of a town increases every year by 2% of the population of the beginning of the year. The approximate no. of years by which the total increase of population will be 40% is:
(a) 15 years **(b) 17 years** (c) 19 years (d) 20 years

Q225. Govinda's mother decides to gift him 50,000 every year starting from today for the next 5 year. Govinda deposits this amount in a bank. As & when he receives & gets 10% p.a. interest rate compounded annually. What is the present value of this annuity? Given P(4,0.10) = 3.16987
(a) 2,80,493.5 (b) 2,08,993.5
(c) 2,08,943.5 (d) 2,58,493.5

Q226. Mr. Paul invested 1,00,000 in a mutual fund scheme. She got a dividend of 10,000 for first year 12,000 for second year, 16,000 for third year, 18,000 for fourth year & 21,000 for fifth year. What is CAGR on dividend return?
(a) 20.38% (b) 18.59% (c) 16.36% (d) 15.89%

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Permutation & Combination

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Nov 2006

Q1. N0. of triangles that can be formed by choosing vertices from 12 points, 7 of which lie on same straight line, is:
(a) 185 (b) 175 (c) 115 (d) 105

Q2. A code word is to consist of two English alphabets followed by two distinct numbers between 1 & 9. How many such code words are there?
(a) 6,15,800 **(b) 46,800** (c) 7,19,500 (d) 4,10,800

Q3. A boy has 3 library tickets & 8 books of his interest in library of these 8, he does not want to borrow Mathematics part-ll unless Mathematics part-1 is also borrowed? In how many ways can he choose the three books to be borrowed?
(a) 41 (b) 51 (c) 61 (d) 71

Feb 2007

Q4. An examination paper consists of 12 questions divided into two parts A and B. Part A contains 7 questions and part B contains 5 questions. A candidate is required to attempt 8 questions selecting at least 3 from each part. In how many maximum ways can the candidate select the questions?
(a) 35 (b) 175 (c) 210 **(d) 420**

Q5. Supreme Court Bench consists of 5 judges. How many ways, bench can give majority decision?
(a) 10 (b) 5 (c) 15 **(d) 16**

Q6. P(7, k) = 60 P(7, k-3), then K =____
(a) 9 (b) 8 **(c) 5** (d) 0

Q7. Number of ways in which n books can be arranged on a shelf so that two particular books are not together is:
(a) (n - 2) × (n - 1)! (b) (n - 2) × (n + 1)!
(c) (n - 1) × (n + 1)! (d) (n - 2) × (n + 2)!

May 2007

Q8. In how many ways can the letters of word FAILURE be arranged so that consonants occupy only odd positions?
(a) 576 (b) 476 (c) 376 (d) 276

Q9. Five bulbs-of which three are defective are to be tried in two lights-points in a dark-room. In how many trials the room shall be lighted?
(a) 10 **(b) 7** (c) 3 (d) None

Q10. In how many ways can a party of 4 men & 4 women be seated at a circular table, so that no 2 women are adjacent?
(a) 164 (b) 174 **(c) 144** (d) 154

Q11. The value of $\sum_{r=1}^{5} {}^{5}C_r$ is:
(a) 29 **(b) 31** (c) 35 (d) 26

Q12. If ${}^{6}P_r = 24.{}^{6}C_r$, then find f:
(a) 4 (b) 6 (c) 2 (d) 1

Aug 2007

Q13. Find the number of combinations of the letters of the word COLLEGE taken four together:
(a) 18 (b) 16 (c) 20 (d) 26

Q14. How many words can be formed with the letters of the word 'ORIENTAL so that A and E always occupy odd places:
(a) 540 **(b) 8640** (c) 8460 (d) 8450

Nov 2007

Q15. If ${}^{1000}C_{98} = {}^{999}C_{97} + {}^{x}C_{901}$, find x:
(a) 999 (b) 998 (c) 997 (d) 1000

Q16. How many numbers greater than a million can be formed with the digits 4, 5, 5, 0, 4, 5, 3?
(a) 260 **(b) 360** (c) 280 (d) 380

Feb 2008

Q17. A building contractor needs 3 helpers out of ten men supply. In how many ways can these selections take place?
(a) 36 (b) 15 (c) 150 **(d) 120**

Q18. There are 3 blue balls, 4 red balls, & 5 green balls. In how many ways can be arranged in a row.
(a) 26,720 **(b) 27,720** (c) 27,820 (d) 26,620

Q19. If C(n, r): C(n, r + 1) = 1 : 2 & C (n, r + 1): C (n, r + 2) = 2:3, determine value of n & r:
(a) (14, 4) (b) (12,4) (c) (14,6) (d) None.

June 2008

Q20. Six seats of articled clerks are vacant in a 'CA Firm'. How many different batches of candidates can be chosen out of 10 candidates?
(a) 216 **(b) 210** (c) 220 (d) None

Q21. Six persons A, B, C, D, E and F are to be seated at a circular table. In how many ways can this be done, if A must always have either B or C on his right and B must always have either C or D on his right?
(a) 3 (b) 6 (c) 12 **(d) 18**

Dec 2008

Q22. If ${}^{n}P_r = {}^{n}P_{r+1}$ & ${}^{n}C_r = {}^{n}C_{r-1}$ then 'n'=?
(a) 2 **(b) 3** (c) 4 (d) 5

Q23. How many six-digit telephone numbers can be formed by using 10 distinct digits?
(a) 10^6 (b) 6^{10} (c) ${}^{10}C_6$ **(d) ${}^{10}P_6$**

Q24. In how many ways a committee of 6 members can be formed from a group of 7 boys & 4 girls having at least 2 girls in the committee.
(a) 731 (b) 137 **(c) 371** (d) 351

June 2009

Q25. Number of ways of painting a face of a cube by 6 colours is ____.
(a) 36 **(b) 6** (c) 24 (d) 1

Q26. If $_{}{}^{18}C_r = {}^{18}C_{r+2}$ find ${}^{r}C_5$.
(a) 55 (b) 50 **(c) 56** (d) None

Q27. 7 books are to be. arranged in such a way so that two particular books are always at first and last place. Final the number of arrangements.
(a) 60 (b) 120 **(c) 240** (d) 480

Q28. Find number of arrangements in which the letters of the word 'MONDAY' be arranged so that the words thus formed begin with 'M' & do not end with 'N'.
(a) 720 (b) 120 **(c) 96** (d) None.

Q29. In how many ways can 17 billiard balls be arranged if 7 of them are black, 6 red & 4 white?
(a) 4084080 (b) 1 (c) 8048040 (d) None

Dec 2009

Q30. $(n + 1)! = 20 (n - 1)!$, find n
(a) 6 (b) 5 **(c) 4** (d) 10

Q31. Out of 4 gents & 6 ladies, a committee is to be formed find no. of ways the committee can be formed such that it comprises of at least 2 gents & at least number of ladies should be double of gents.
(a) 94 **(b) 132** (c) 136 (d) 104

June 2010

Q32. Six points are on a circle. Number of quadrilaterals that can be formed are:
(a) 30 (b) 360 **(c) 15** (d) None

Q33. The number of ways of arranging 6 boys and 4 girls in a row so that all 4 girls are together is:
(a) 6!4! (b) 2 (7!4!) **(c) 7!.4!** (d)2. (6!4!)

Q34. How many numbers not exceeding 1000 can be made from digits 1,2, 3, 4, 5, 6, 7, 8, 9 if repetition is not allowed.
(a) 364 **(b) 585** (c) 728 (d) 819

Dec 2010

Q35. A garden having 6 tall trees in a row. In how many ways 5 children stand, one in a gap between the trees in order to pose for a photograph?
(a) 24 **(b) 120** (c) 720 (d) 30

Q36. ${}^{15}C_3 + {}^{15}C_{13}$ is equal to:
(a) ${}^{16}C_3$ (b) ${}^{30}C_{16}$ (c) ${}^{15}C_{16}$ (d) ${}^{15}C_{15}$

Q37. How many ways a team of 11 players can be made out of 15 players if 1 particular player is not to be selected.
(a) 364 (b) 728 (c) 1,001 (d) 1,234

June 2011

Q38. Find no. of arrangements of 5 things taken out of 12 things, in which 1 particular thing must always be included.
(a) 39,000 (b) 37,600 **(c) 39,600** (d) 36,000

Dec 2011

Q39. In how many ways 3 prizes out of 5 can be distributed amongst 3 brothers Equally?
(a) 10 (b) 45 **(c) 60** (d) 120

Q40. There are 12 questions to be Answered to be Yes or No. How many ways can these be Answered?
(a) 1024 (b) 2048 **(c) 4096** (d) None

June 2012

Q41. Letters of the word "VIOLENT' are arranged so that the vowels occupy even place only. No. of permutations is __.
(a) 144 (b) 120 (c) 24 (d) 72

Q42. If ${}^nP_4 = 20 ({}^nP_2)$ then value of 'n' is __.
(a) -2 **(b) 7** (c) - 2 & 7 both (d) None

Dec 2012

Q43. A man has 3 sons and 6 schools within his reach. In how many ways, he can send them to school, if two of his sons are to read in the same school?
(a) ${}^6P_2$ **(b)** ${}^6P_3$ (c) 63 (d) 36

Q44. How many permutations can be formed from letters of word "DRAUGHT', if both vowels may not be separated?
(a) 720 **(b) 1,440** (c) 140 (d) 1,000

Q45. If ${}^{13}C_6 + 2\,{}^{13}C_5 + {}^{13}C_4 = {}^{15}C_X$ then, x = ___.
(a) 6 (b) 7 (c) 8 (d) 9

June 2013

Q46. A polygon has 44 diagonals then the number of its sides are:
(a) 8 (b) 9 (c) 10 **(d) 11**

Q47. Number of words that can be formed out of the letters of the word "ARTICLE" so that vowels occupy even place is:
(a) 36 **(b) 144** (c) 574 (d) 754

Q48. Number of ways of shaking hands in a group of 10 persons shaking hands to each other are:
(a) 45 (b) 54 (c) 90 (d) 10

Dec 2013

Q49. If ${}^{15}C_{3r} = {}^{15}C_{r+3}$, then 'r' is equal is
(a) 2 **(b) 3** (c) 4 (d) 5

Q50. How many different words can be formed with the letters of the word "LIBERTY"
(a) 4050 **(b) 5040** (c) 5400 (d) 4500

Q51. In how many ways can a family consist of three children here different birthdays in a leap year
(a) ${}^{365}C_3$ (b) ${}^{366^\circ}C_3$
(c) 366 × 365 × 364 (d) ${}^{366}C_3$

June 2014

Q52. If $^{1000}C_{98} = {}^{999}C_{97} + {}^{x}C_{901}$, then x = ____

(a) 999 (b) 998 (c) 997 (d) None

Q53. If 6 times the number of permutations of 'n' items taken 3 at a time is equal to seven times the number of permutations of (n - 1) items taken 3 at a time, then the value of 'n' will be:

(a) 7 (b) 9 (c) 13 **(d) 21**

Dec 2014

Q54. If $^{6}P_r = 360$, then the value of 'r' is:

(a) 5 (b) 3 **(c) 4** (d) None

Q55. There are 5 books on English, 4 Books on Tamil & 3 books on Hindi. In how many ways can these books be placed on a shelf if the books on the same subjects are to be together?

(a) 1,36,800 (b) 1,83,600 **(c) 1,03,680** (d) 1,63,800

Q56. 5 Men and 4 Women to sit in a row in such a manner that the woman always occupy the even places. The number of such arrangement will be:

(a) 126 (b) 1056 (c) 2080 **(d) 2880**

June 2015

Q57. The four-digit numbers that can be formed out of seven digits 1,2, 3, 5, 7, 8, 9 such that no digit is repeated in any number & are greater than 3000 are:

(a) 120 (b) 480 **(c) 600** (d) 840

Q58. A person has ten friends of whom six are relatives. If he invites five guests such that three of them are his relatives, then the total number of ways in which he can invite them are:

(a) 30 (b) 60 **(c) 120** (d) 75

Q59. A student has three books on computer, three books on Economics and five books on Commerce. If these books are to be arranged subject wise, then these can be placed on a shelf in the number of ways:

(a) 25290 **(b) 25920** (c) 4230 (d) 4320

Dec 2015

Q60. An examination paper with 10 questions consists of 6 questions in maths & 4 questions in stats part. At least one question from each part is to be attempted in how many ways can this be done?

(a) 1024 **(b) 945** (c) 1005 (d) 1022

Q61. $^{n}P_r = 720$ & $^{n}C_r = 120$, Find r.

(a) 6 (b) 4 **(c) 3** (d) 2

Q62. There are 6 men and 4 women in a group, then the number of ways in which a committee of 5 persons can be formed of them, if the committee is to include at least 2 women are:

(a) 180 **(b) 186** (c) 120 (d) 105

June 2016

Q63. In how many ways can a selection of 6 out of 4 teachers & 8 students be done so as to include atleast 2 teachers.

(a) 220 **(b) 672** (c) 896 (d) 968

Q64. There are 10 students in a class including 3 girls. The number of ways to arrange them in a row when any two girls out of three never comes together

(a) $^{8}P_3 \lfloor 7$ (b) $^{3}P_3 \lfloor 7$ (c) $^{8}P_3 \lfloor 10$ (d)None

Q65. Maximum number of points of intersection of 10 circles will be:

(a) 2 (b) 20 **(c) 90** (d) 180

Dec 2016

Q66. If $^{n+1}C_{r+1} : {}^{n}C_r : {}^{n-1}C_{r-1} = 8:3:1$, then n =___:

(a) 20 (b) 16 (c) 10 **(d) 15**

Q67. Number of numbers between 1,000 & 10,000, which can be formed by digits 1,2,3, 4, 5, 6 without repetition is:

(a) 720 (b) 180 **(c) 360** (d) 540

Q68. The number of ways in which 4 persons can occupy 9 vacant seats is:

(a) 6048 **(b) 3024** (c) 1512 (d) 4536

June 2017

Q69. If $^{10}C_3 + 2.{}^{10}C_4 + {}^{10}C_5 = {}^{n}C_5$ then n = ___:

(a) 10 (b) 11 **(c) 12** (d) 13

Q70. Number of parallelograms, formed from a set of six parallel lines intersecting another set of four parallel lines is:

(a) 360 **(b) 90** (c) 180 (d) 45

Q71. The number of words which can be formed by letters of the word 'ALLAHABAD' is:

(a) 7560 (b) 3780 (c)30240 (d) 15120

Dec 2017

Q72. If $^{n}P_{13} : {}^{n+1}P_{12} = 3:4$, then 'n' will be:

(a) 13 **(b) 15** (c) 18 (d) 31

Q73. If 3 books on computer, 3 books on commerce, & 5 books on economics are arranged in such away that the books of same subject are kept together, then the number of ways in which this can be done are:

(a) 4320 (b) 35820 (c) 35920 **(d) 25920**

June 2018

Q74. Number of triangles that can be formed by choosing the vertices from a set of 12 points, seven of which lie on the same straight line, is:

(a) 185 (b) 175 (c) 115 (d) 105

Q75. If $^{1000}C_{98} = {}^{999}C_{97} + {}^{x}C_{901}$, find x:

(a) 999 (b) 998 (c) 997 (d) 1,000

Dec 2018

Q76. A bag contains 4 red, 3 black & 2 white balls. In how many ways 3 balls can be drawn from this bag so that they include at least one black ball?

(a) 64 (b) 46 (c) 85 (d) None

Q77. Number of words from letters of the word BHARAT, in which B & H will never come together, is

(a) 360 **(b) 240** (c) 120 (d) None

Q78. The value of N in $\frac{1}{7!}+\frac{1}{8!}=\frac{N}{9!}$ is

(a) 81 (b) 78 (c) 89 (d) 64

Q79. If ${}^{n}P_{r}=720$ and ${}^{n}C_{r}=120$, then r is

(a) 3 (b) 4 (c) 5 (d) 6

June 2019

Q80. Which is a correct statement.

(a) ${}^{n}p_{n}={}^{n}p_{n-1}$ (b) ${}^{n}p_{n}={}^{2n}p_{n-2}$

(c) ${}^{n}p_{n}={}^{3n}p_{n-3}$ (d) ${}^{n}p_{n}={}^{n\cdot(n-1)}p_{n-1}$

Q81. If these are 40 guests in a party. If each guest takes a shake hand with all remaining guests, total handshakes =

(a) 780 (b) 840 (c) 1,560 (d) 1,600

Q82. If ${}^{11}C_{x}={}^{11}C_{2x-4}$ & $x\neq 4$, then ${}^{7}C_{x}=$

(a) 20 **(b) 21** (c) 22 (d) 23

Q83. In how many ways can crew of an eight oared boat be arranged so that 3 of crew can row only on a stroke side & 2 row on the other side?

(a) 1,728 (b) 256 (c) 164 (d) 126

Dec 2019

Q84. 3 girls & 5 boys are to be seated in a row so that no 2 girls sit together. Total no. of ways of this arrangement are:

(a) 14,400 (b) 120 (c) ${}^{5}p_{3}$ (d) $3!\times 5!$

Q85. How many numbers can be formed with the help of 2,3,4,5,6,7 which are not divisible by 5, given that it is a five-digit no. and digits are not repeating?

(a) 600 (b) 400 (c) 1200 (d) 1400

Q86. How many different groups of 3 people can be formed from a group of 5 people?

(a) 5 (b) 6 **(c) 10** (d) 9

Q87. In how many ways can 5 people be selected at random from 6 boys & 4 girls if there are to be exactly 2 girls?

(a) 120 (b) 360 (c) 92 (d) 480

Q88. ${}^{n}P_{5}:{}^{n}P_{3}=2:1$. Find n.

(a) 5 (b) 7/2 (c) 5 (d) 2/7

Dec 2020

Q89. A fruity basket contains 7 apples, 6 bananas, and 4 mangoes. How many selections of 3 fruits can be made so that all 3 are apples?

(a) 35 ways (b) 120 ways (c) 165 ways (d) 70 ways

Q90. Out of 7 boys and 4 girls, a team of a debate club of 5 is to be chosen. The number of teams such that each team includes at least one girl is:

(a) 439 (b) 429 (c) 419 **(d) 441**

Q91. If ${}^{n}p_{4}=20{}^{n}p_{2}$, then n=?

(a) 4 (b) 2 (c) 5 **(d) 7**

Q92. From a group of 8 men & 4 women, 4 persons are to be selected to form a committee so that at least 2 women are there on committee. In how many ways can it be done?

(a) 168 **(b) 201** (c) 202 (d) 220

Jan 2021

Q93. Eight Chairs are numbered from 1 to 8. Two women & 3 men are to be seated by allowing one chair for each. First, women choose the chairs from the chairs numbered 1 to 4 & then men select the chairs from the remaining. The number of possible arrangements is:

(a) 120 (b) 288 (c) 32 **(d) 1440**

Q94. 'n' locks & 'n' corresponding keys are available but the actual combination is not known. Maximum no. of trials that are needed to assigns keys to the corresponding locks is:

(a) $(n-1)C_{2}$ (b) $(n+1)C_{2}$

(c) $\sum_{k=2}^{n}(k-1)$ (d) $\sum_{k=2}^{n}k$

Q95. There are 10 flights operating between city A & city B. Number of ways in which a person can travel from city A to city B and return by different flight is:

(a) 90 (b) 95 (c) 80 (d) 78

Q96. How many four-digit odd numbers can be formed with digits 0,1,2,3, 4,7 & 8?

(a) 150 **(b) 300** (c) 120 (d) 210

Q97. In how many different ways letters of word 'DETAIL' be arranged so that vowels occupy only odd positions?

(a) 32 **(b) 36** (c) 48 (d) 60

Q98. ${}^{n}C_{p}+2\,{}^{n}C_{P-1}+{}^{n}C_{P-2}=?$

(a) ${}^{n+}C_{p}$ **(b)** ${}^{n+2}C_{p}$ (c) ${}^{n+1}C_{P+1}$ (d) ${}^{n+2}C_{p-1}$

Q99. A business houses wishes to simultaneously elevate 2 of its 6 branch heads. In how many ways can these elevations take place?

(a) 12 (b) 3 (c) 6 **(d) 15**

July 2021

Q100. If ${}^{n}p_{6}=20{}^{n}p_{4}$ n =?

(a) $n=5$ (b) $n=3$ **(c)** $n=9$ (d) n = 8

Q101. How many numbers of seven-digit numbers which can be formed from the digits 3,4,5,6,7,8,9 no digits being repeated are not divisible by 5?
(a) 4320 (b) 4690 (c) 3900 (d) 3890

Q102. A person can go from place 'A' to 'B' by 11 different modes of transport but is allowed to return to "A" by any mode other than the one earlier. The number of different ways in which journey can be completed is:
(a) 110 (b) 10^{10} (c) 9^5 (d) 10^9

Q103. Number of ways 5 boys & 5 girls can be seated at a round table, so no two boys are adjacent is:
(a) 2,550 **(b) 2,880** (c) 625 (d) 2,476

Q104. The number of four-letter words can be formed using the letters of the word DICTIONARY is
(a) 5040 (b) 720 (c) 30240 (d) 90

Q105. The number of words that can be formed using the letters of the "PETROL" such that the words do not have "P" in the first position, is
(a) 720 (b) 120 **(c) 600** (d) 540

Q106. If ${}^{n}p_2 = 12$, then the value of n is
(a) 2 (b) 3 **(c) 4** (d) 6

Q107. The number of different ways the letters of the word "DETAIL" can be arranged in such a way that the vowels can occupy only the odd position is
(a) 32 **(b) 36** (c) 48 (d) 60

Q108. Six boys and five girls are to be seated for a photograph in a row such that no two girls sit together and no two boys sit together. Find the number of ways in which this can be done.
(a) 74,200 (b) 96,900 (c) 45,990 **(d) 86,400**

Q109. Man travels place A to B in 10 ways, by how many ways can he come back by another train?
(a) 94 (b) 110 **(c) 90** (d) 99

Q110. If four letter words are taken with or without meaning from the word 'LOGARITHM' without repetition, how many words will be formed?
(a) 5040 (b) 2520 **(c) 3024** (d) 40320

Q111. If $\frac{n!}{10} = \frac{(n-1)!}{(n-1-n+3)!}$, find 'n'.
(a) 4 **(b) 5** (c) 6 (d) 7

Q112. Out of 7 boys and 4 girls, a team of 5 is to be selected, and each team should have atleast one girl. The number of teams that can be formed is:
(a) 429 (b) 439 (c) 419 **(d) 441**

Q113. 8 people are seated in a row in a meeting among them president & vice president are to be seated always in the center. What is the arrangement?
(a) 6! 2! (b) 7! 2 (c) 6! (d) 1!

Q114. There are 5 questions each have 4 options. Then in how many different ways can we answer the questions?
(a) 20 (b) 120 **(c) 1024** (d) 60

Q115. If there are 6 points in a line & 4 points in another line. Find number of parallelograms formed?
(a) 80 (b) 70 **(c) 90** (d) 100

Q116. If ${}^{11}C_x = {}^{11}C_{2x-4}$ & $x \neq 4$, ${}^{7}C_x$
(a) 20 **(b) 21** (c) 22 (d) 23

Dec 2022

Q117. There are 20 points in plane area. How many triangles can be formed by these points if 5 points are collinear?
(a) 550 (b) 560 **(c) 1130** (d) 1140

Q118. The number of ways 4 boys and 3 girls can be seated in a row so that they are alternate is:
(a) 12 (b) 288 **(c) 144** (d) 256

Q119. If ${}^{n}P_r = 3024$ & ${}^{n}C_r = 126$, find n & r?
(a) 9,4 (b) 10,3 (c) 12,4 (d) 11,4

Q120. How many 3-digit odd numbers can be formed using the digits 5,6,7,8,9, if digits can be repeated?
(a) 55 **(b) 75** (c) 65 (d) 85

June 2023

Q121. In the next world cup these will be 12 teams, divided equally into two equal groups. Team of each group will play a match against other. From each group 3 top teams will qualify for next round. In this round each team will play against each other. Four top teams of his round will qualify for the semi-final round, when each team will play against the others once. Two top teams of this round will go to final round, where they will play the best of three matches. The minimum number of matches in the next world cup will be:
(a) 56 **(b) 53** (c) 37 (d) 43

Q122. A committee of 3 women and 4 men is to be formed out of 8 women and 7 men. Mrs. Kajal refuses to serve in a committee in which Mr. Yash is a member. The number of such committee can be.
(a) 1530 (b) 1500 (c) 1520 **(d) 1540**

Q123. ${}^{6}P_{2r} = 12 \times {}^{6}Pr$, then r is equal to
(a) 1 **(b) 2** (c) 3 (d) 4

Q124. Find the number of ways in which the letters of the word SOFTWARE be arranged such that all the vowels are always together?
(a) 720 (b) 1,440 (c) 2,880 **(d) 4,320**

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Arithmetic Progression & Geometric Progression

TO BUY HARDCOPY OF PYQs

SCAN ME

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Nov 2006

Q1. The sum of all natural numbers between 100 and 1000 which are multiple of 5 is:
(a) 98,450 (b) 96,450 (c) 97,450 (d) 95,450

Q2. Find n such that $\frac{a^{n+1}+b^{n+1}}{a^n+b^n}$ may be GM between a & b:
(a) 1/2 (b) 1 **(c) -1/2** (d) 0

Q3. The sum of an A P, whose first term is - 4 and last term is 146 is 7171. Find the value of n.
(a) 99 (b) 100 **(c) 101** (d) 102

Q4. If the first term of a G.P exceeds the second term by 2 and the sum to infinity is 50, the series is:
(a) 10,8, $\frac{32}{5}$, ... (b) 10, 8, $\frac{5}{2}$, ...
(c) 10, $\frac{10}{3}$, $\frac{10}{9}$, ... (d) None

Feb 2007

Q5. $\sum n^2$ is defined as ___.
(a) $\frac{n(n+1)(2n+1)}{6}$ (b) $\frac{n(n+1)}{2}$ (c) $\left[\frac{n(n+1)}{2}\right]^2$ (d) None

Q6. Divide 30 into five parts in A.P., such that the first and last parts are in the ratio 2:3:
(a) $\frac{24}{5}, \frac{27}{5}, 6, \frac{33}{5}, \frac{36}{5}$ (b) 6, $\frac{36}{5}, \frac{33}{5}, \frac{24}{5}, \frac{27}{5}$
(c) $\frac{27}{5}, \frac{24}{4}, \frac{36}{5}, \frac{33}{5}, 6$ (d) 6, $\frac{24}{5}, \frac{27}{5}, \frac{33}{5}, \frac{36}{5}$

Q7. If $a^{1/x} = b^{1/y} = c^{1/z}$ & a, b, c are in G.P; the x, y, z are in:
(a) AP (b) GP (c) Both (a) & (b) (d)None

Q8. Sum of the series: 7 + 77 + 777 + ... to n terms:
(a) $\frac{7}{9}(10^{n+1} - 10) - \frac{7n}{9}$ (b) $\frac{7}{9}(10^{n+1} - 10) + \frac{7n}{9}$
(c) $\frac{7}{81}$ (10n+1 - 10) – $\frac{7n}{9}$ (d) $\frac{7}{81}(10^{n+1} - 10) + \frac{7n}{9}$

May 2007

Q9. Find the sum of all natural numbers between 250 & 1,000 which are exactly divisible by 3:
(a) 1,56,375 (b) 1,56,357 (c)1,65,375 (d) 1,65,357

Q10. If p^{th} term of a GP is x & q^{th} term is y, then n^{th} term =
(a) $\left[\frac{x^{(n-q)}}{y^{(n-p)}}\right]$ (b) $\left[\frac{x^{(n-q)}}{y^{(n-p)}}\right]^{(p-q)}$ (c) 1 (d) $\left[\frac{x^{(n-q)}}{y^{(n-p)}}\right]^{\frac{1}{p-q}}$

Q11. A person pays Rs. 975 in monthly instalments, each instalment is less than former by Rs. 5. Amount of 1st instalment is Rs. 100. In what time will full amount be paid?
(a) 26 months **(b) 15 months** (c) 18 months (d) None

Aug 2007

Q12. If the sum of n terms of an A.P. is $(3n^2 - n)$ and its common difference is 6, then its first term is:
(a) 3 **(b) 2** (c) 4 (d) 1

Q13. Find the sum of the series: 2 + 7 + 12+ ..... 297.
(a) 8970 (b) 8870 (c) 7630 (d) 9875

Q14. A certain ball when dropped to the ground rebounds to $4/5^{th}$ of the height from which it falls; it is dropped from a height of 100 metres. Find total distance it travels before finally coming to rest:
(a) 600m (b) 700m **(c) 900m** (d) 200m

Q15. In a G.P if the $(p + q)^{th}$ term is m & $(p - q)^{th}$ term is n, then the p^{th} term is:
(a) mn **(b) $\sqrt{mn}$** (c) m^2 (d) n^2

Nov 2007

Q16. The sum of the series: 0.5 + 0.55 + 0.555 + ... to n
(a) $\frac{5n}{9} + \frac{5}{9}[1 - (0.1)^n]$ **(b) $\frac{5n}{9} - \frac{5}{81}[1 - (0.1)^n]$**
(c) $\frac{5n}{9} + \frac{5}{81}[1 - (0.1)^n]$ (d) $\frac{5n}{9} + \frac{5}{81}[1 + (0.1)^n]$

Q17. A contractor who fails to complete a building in a certain specified time is compelled to forfeit Rs. 200 for the first day of extra time required and thereafter forfeited amount is increased by Rs. 25 for every day. If he loses Rs. 9,450, for how many days did he over-run the contract time?
(a) 19 days **(b) 21 days** (c) 23 days (d) 25 days

Q18. The 1st, 2nd & 7th term of A.P. are in G.P. & the common difference is 2, the 2nd term of A.P. is
(a) 5/2 (b) 2 (c) 3/2 (d) 1/2

Feb 2008

Q19. A man employed in a company is promised a salary of Rs. 3,000 every month for the first year and an increment of Rs. 1,000 in his monthly salary every succeeding year. How much does the man earn from the company in 20 years?
(a) Rs. 30,00,000 (b) Rs. 27,50,000
(c) Rs. 19,10,000 (d) Rs. 7,90,000

Q20. If a, b, c are in AP & x, y, z are in G.P, $x^{(b-c)}.y^{(c-a)}.z^{(a-b)}$ =
(a) 1 (b) 0 (c) b(c - a) (d) None

Q21. Insert 4 A.M.'s between 3 and 18:
(a) 12, 15,9,6 **(b) 6,9, 12, 15** (c) 9,6,12,15 (d) 15,12,9,6

Q22. If $x = 1 + \frac{1}{3} + \frac{1}{3^2} + ... \infty$ $y = 1 + \frac{1}{4} + \frac{1}{4^2} + ... \infty$ Find xy.
(a) 2 (b) 1 (c) 8/9 (d) ½

June 2008

Q23. On 1st January every year a person buys National Saving Certificates of value exceeding that of his last year's purchase by Rs. 100. After 10 years, he finds that the total value of the certificates purchased by him is Rs. 54,500. Find the value of certificates purchased by him in the first year:
(a) 6,000 (b) 4,000 **(c) 5,000** (d) 5,500

Q24. Find three numbers in GP such that their sum is 21, and the sum of their squares is 189:
(a) 5, 7, 9 (b) 3, 7, 11 **(c) 3, 6, 12** (d) 4, 8, 9

Dec 2008

Q25. Find the ninth term of the series: $\sqrt{2}, 5\sqrt{2}, 9\sqrt{2}, ...$
(a) $25\sqrt{2}$ (b) $31\sqrt{2}$ **(c) $33\sqrt{2}$** (d) $52\sqrt{2}$

Q26. Sum of how many terms of 256, 128, 64, ... is 511.
(a) 8 **(b) 9** (c) 7 (d) None

Q27. (x + 1), 3x, (4x + 2) are in A.P. Find the value of x
(a) 2 **(b) 3** (c) 4 (d) 5

Q28. Find two numbers whose A.M. is 10 and G.M. is 8.
(a) [10,10] . **(b) [16,4]** (c) [18,2] (d) [14,6]

June 2009

Q29. $\sum n^2$ defines: **(Same as Q5 Feb 2007)**
(a) $\frac{n(n+1)(2n+1)}{6}$ (b) $\frac{n(n+1)}{2}$
(c) $\left[\frac{n(n+1)}{2}\right]^2$ (d) None

Q30. The sum of terms of an infinite GP is 15. And the sum of the squares of the term is 45. Find the common ratio.
(a) 3/2 (b) 1 (c) -2/3 **(d) 2/3**

Q31. If in an A.P., Tn represents nth term. If $t_7 : t_{10} = 5 : 7$ then $t_8 : t_{11}$ = _____
(a) 13: 16 **(b) 17:23** (c) 14:17 (d) 15:19

Dec 2009

Q32. The sum of an A P, whose first term is - 4 and last term is 146 is 7171. Find the value of n.
(a) 99 (b) 100 **(c) 101** (d) 102

Q33. Find sum to infinity of: 1 – 1 + 1 – 1 + 1 – 1 +..... ∞
(a) 1 (b) ∞ **(c) ½** (d) Does not exist

June 2010

Q34. If a_1, a_2, a_3 represents 1st, 2nd & 3rd terms of an AP respectively, 1st term is 2 & $(a_1 + a_2)a_3$ is minimum, then the common difference is equal to
(a) 5/2 **(b) -5/2** (c) 2/5 (d) - 2/5

Q35. Divide 144 into three parts which are in AP and such that the largest is twice the smallest, the smallest of three numbers will be:
(a) 48 (b) 36 (c) 13 **(d) 32**

Q36. Sum of series $1 + \frac{4}{5} + \frac{7}{5^2} + \frac{10}{5^3} + \ldots \infty$ is
(a) 15/36 (b) 35/36 **(c) 35/16** (d) 15/16

Dec 2010

Q37. If G be Geometric Mean between two numbers a and b, then the value of $\frac{1}{G^2-a^2} + \frac{1}{G^2-b^2}$ is equal to
(a) G^2 (b) $3\,G^2$ **(c) $1/G^2$** (d) $2/G^2$

June 2011

Q38. If Sum (S_n) of 'n'- terms of an AP is $(2n^2 + n)$. What is the difference of its 10th and 1st term?
(a) 207 **(b) 36** (c) 90 (d) 63

Q39. Find the product of: $(243), (243)^{1/6}, (243)^{1/36}, \ldots \infty$
(a) 1,024 (b) 27 **(c) 729** (d) 246

Q40. Insert 2 AMs between 68 & 260
(a) 132,196 (b) 130,194 (c) 70, 258 (d) None

Q41. GM of P, P^2, P^3 ....., P^n will be:
(a) P^{n+1} **(b)** $P^{\frac{1+n}{2}}$ (c) $P^{\frac{n(n+1)}{2}}$ (d) None

Dec 2011

Q42. Find the numbers whose AM is 12.5 & GM is 10.
(a) 20 & 5 (b) 10 & 5 (c) 5 & 4 (d) None

Q43. If sum of 3 AMs between "a" & 22 is 42, then "a" = _____
(a) 14 (b) 11 (c) 10 **(d) 6**

Q44. If each month Rs. 100 increases in any sum then find total sum after 10 months, if sum of 1st month is Rs. 2,000.
(a) Rs. 24,500 (b) Rs. 24,000
(c) Rs. 50,000 (d) Rs. 60,000

Q45. The sum of all two Digit odd numbers is
(a) 2475 (b) 2575 (c) 4950 (d) 5049

Q46. If 5th term of a G.P. is $3\sqrt{3}$, then product of 1st nine terms
(a) 8 **(b) 27** (c) 243 (d) 9

Q47. The sum of the third and ninth term of an A.P. is 8. Find the sum of first 11 terms of progression.
(a) 44 (b) 22 (c) 19 (d) 11

June 2012

Q48. If 8th term of an A.P is 15, then sum of its 15 terms is:
(a) 15 (b) 0 **(c) 225** (d) 225/2

Q49. Find sum of the infinite terms $2, \frac{4}{y}, \frac{8}{y^2}, \frac{16}{y^3}$ .....; if y > 2
(a) $\frac{2y}{y-2}$ (b) $\frac{4y}{y-2}$ (c) $\frac{3y}{y-2}$ (d) None

Q50. The 4th term of an A.P. is three times the first and the 7th term exceeds twice the third term by 1. Find the first term 'a' and common difference 'd'.
(a) a = 3, d = 2 (b) a = 4, d = 3
(c) a = 5, d = 4 (d) a = 6, d = 5

Dec 2012

Q51. In an A.P., if common difference is 2, Sum of. n terms is 49, 7th term is 13 then n = _____.
(a) 0 (b) 5 **(c) 7** (d) 13

Q52. The first term of a G.P. where second term is 2 and sum of infinite term is 8 will be:
(a) 6 (b) 3 **(c) 4** (d) 1

Q53. If sum of n terms of AP be $2n^2 + 5n$, its 'nth' term is:
(a) 4n - 2 (b) 3n – 4 **(c) 4n + 3** (d) 3n + 4

June 2013

Q54. If the sum of n terms of an A.P be $3n^2$-n & its common difference is 6, then its first term is:
(a) 2 (b) 3 (c) 4 (d) 5

Q55. If the sum of the 4th term and the 12th term of an A.P. is 8, what is the sum of the first 15 terms of the progression?
(a) 60 (b) 120 (c) 110 (d) 150

Q56. If 'n' AMs are inserted between 7 & 71 & 5th AM is 27, then 'n' is equal to:
(a) 15 (b) 16 (c) 17 (d) 18

Q57. In a GP, $T_6 = 729$ & $d = 3$, then first term of G.P. is:
(a) 2 **(b) 3** (c) 4 (d) 7

Dec 2013

Q58. An AP has 13 terms whose sum is 143. The third term is 5 so the first term is:
(a) 4 (b) 7 (c) 9 **(d) 2**

Q59. If GM of a, b, c, d is 3, then G.M. of $\frac{1}{a}, \frac{1}{b}, \frac{1}{c}, \frac{1}{d}$ will be:
(a) 1/3 (b) 3 (c) 81 (d) 1/81

June 2014

Q60. The sum of 1+11+111+.... upto m terms, is equal to:
(a) $\frac{1}{81}(10^{m+1} - 9m - 10)$ (b) $\frac{1}{27}(10^{m+1} - 9m - 10)$
(c) $10^{m+1} - 9m - 10$ (d) None

Q61. Sum of infinite G.P. $1 + \frac{1}{3} + \frac{1}{9} + \frac{1}{27} + ...$ is equal to:
(a) 1.95 **(b) 1.5** (c) 1.75 (d) None

Q62. Value of $1^3+2^3+3^3+4^3+ ...+m^3$ is equal to:
(a) $\left[\frac{m(m+1)}{2}\right]^3$ (b) $\frac{m(m+1)(2m+1)}{6}$
(c) $\left[\frac{m(m+1)}{2}\right]^2$ (d) None of these.

Dec 2014

Q63. If x, y, z are the terms in G.P. then the terms $x^2 + y^2$, $xy + yz$, $y^2 + z^2$ are in:
(a) AP **(b) GP** (c) HP (d) None

Q64. If $S_n = n^2p$ & $S_m = m^2p$ $(m \neq n)$ is the sum of an A.P., then S_P = _____
(a) p^2 **(b) p^3** (c) $2p^3$ (d) p^4

Q65. The AMs of the square of first 2n natural numbers is:
(a) $\frac{1}{6}(2n + 1)(4n - 1)$ (b) $\frac{1}{6}(2n - 1)(4n - 1)$
(c) $\frac{1}{6}(2n - 1)(4n + 1)$ **(d) $\frac{1}{6}(2n + 1)(4n + 1)$**

Q66. If the sum of first 'n' terms of an A.P. is $6n^2 + 6n$, then the fourth term of the series:
(a) 120 (b) 72 **(c) 48** (d) 24

June 2015

Q67. If S be sum, P the product & R is the sum of reciprocals of n-terms in G.P then P^2R^n = ___.
(a) S^{2n} **(b) S^n** (c) S^{-2n} (d) S^{-n}

Q68. Same as June 2014 Q60.

Q69. If 3rd term & 7th term of an A.P are eighteen and thirty respectively, then sum of first twenty terms will be:
(a) 540 (b) 610 (c) 740 **(d) 810**

Dec 2015

Q70. If the sum of 'n' terms of an AP is $3x^2 + 5x$ & its m^{th} term is 164, then the value of m is:
(a) 27 (b) 28 (c) 24 (d) 26

Q71. If a, b, c are in AP, then the value of a – b + c is:
(a) a (b) -b **(c) b** (d) c

Q72. Find the two numbers whose GM is 5 & AM in 7.5.
(a) 10 & 5 **(b) 13.09 & 1.91** (c) 12 & 3 (d) None

June 2016

Q73. Sum of n terms of $\log x + \log \frac{x^2}{y} + \log \frac{x^2}{y^2} + ...$ is
(a) $\frac{n}{2}\left[2n \log\left(\frac{x}{y}\right) + \log xy\right]$ (b) $\frac{n}{2}\left[n \log xy + \log\left(\frac{x}{y}\right)\right]$
(c) $\frac{n}{2}\left[n \log\left(\frac{x}{y}\right) - \log xy\right]$ **(d) $\frac{n}{2}\left[n \log\left(\frac{x}{y}\right) + \log xy\right]$**

Q74. A GP consists of 2n terms. If the sum of the terms occupying the odd places is S_1 and that of terms in the even places is S_2, the common ratio of the progression is:
(a) n (b) $2S_1$ **(c) $\frac{S_2}{S_1}$** (d) $\frac{S_1}{S_2}$

Q75. If $\frac{1}{b+c}, \frac{1}{c+a}, \frac{1}{a+b}$ are in AP then a^2, b^2, c^2, are in
(a) AP (b) GP (c) Both AP & GP (d) None

Dec 2016

Q76. The income of a person is Rs. 5,00,000 in the firm in the first year & he receives an increase of Rs. 15,000 per year for next 10 years. Total amount he receives in 10 years is:
(a) Rs. 56,75,000 (b) Rs. 72,50,000
(c) Rs. 15,67,500 (d) None of these

Q77. If the Sum 50 + 45 + 40 + 35 + _____ is zero, then the number of terms is:
(a) 22 (b) 20 **(c) 21** (d) 25

Q78. The number 2.353535 _____ in $\frac{p}{q}$ form is:
(a) $\frac{235}{99}$ (b) $\frac{234}{99}$ (c) $\frac{230}{99}$ **(d) $\frac{233}{99}$**

June 2017

Q79. Sum of n terms of 1 + (1 + 3) + (1 + 3 + 5) + ... is
(a) $\frac{n(n+1)(2n+1)}{6}$ (b) $\frac{n(n+1)(n+2)}{6}$
(c) $\frac{n(n+1)(2n+1)}{3}$ (d) None of these.

Q80. Sum of 1st 20 terms of a GP is 1025 times the sum of 1st 10 terms of same GP then common ratio is:
(a) $\sqrt{2}$ **(b) 2** (c) $2\sqrt{2}$ (d) 1/2

Q81. If a, - 3, b, 5, c are in A.P., c=?
(a) -7 (b) 1 (c) 13 **(d) 9**

Dec 2017

Q82. The sum of all numbers between 100 and 1000 which are divisible by 11 will be:

(a) 44550 (b) 66770 (c) 55440 (d) 33440

June 2018

Q83. If p^{th}, q^{th}, r^{th} terms of a GP be a, b, c respectively, then $(q-r)\log a + (r-p)\log b + (p-q)\log c$ =

(a) 1 **(b) 0** (c) 2 (d) None

Q84. If a, b, c, d are in GP then $(b-c)^2 + (c-a)^2 + (d-b)^2$ =?

(a) $(a-b)^2$ **(b) $(a-d)^2$** (c) $(c-d)^2$ (d) 0

Q85. $Tn = 3^n - 2^n$, then S_n=?

(a) $\frac{3}{2}(3^n-1)-1(n+1)$ (b) $\frac{3}{2}(3^n+1)-1(n+1)$

(c) $\frac{3}{2}(3^n-1)+1(n+1)$ (d) $\frac{3}{2}(3^n+1)-1(n-1)$

Q86. If the sum of n terms of an AP is $(3n^2 - n)$ and its common difference is 6, then its first term is:

(a) 3 **(b) 2** (c) 4 (d) 1

Q87. Insert two AMs between 68 & 260.

(a) 132,196 (b) 130,194 (c) 70,258 (d) None

Dec 2018

Q88. If P^{th} term of an AP is 'q' & q^{th} term is 'p', then its r^{th} term is

(a) $p + q - r$ (b) $p + q + r$

(c) $p - q - r$ (d) $p - q$

Q89. The 3^{rd} term of a G.P. is $\frac{2}{3}$ & the 6^{th} term is $\frac{2}{81}$, then the 1^{st} term is

(a) 6 (b) $\frac{1}{3}$ (c) 9 (d) 2

Q90. The sum of the series $-8, -6, -4, \ldots\ldots$n terms is 52. The number of terms n is

(a) 11 (b) 12 **(c) 13** (d) 10

Q91. Value of K, for which the terms $7K + 3, 4K - 5, 2K + 10$ are in A.P., is

(a) 13 (b) -13 (c) 23 **(d) -23**

June 2019

Q92. If ratio of sum of n terms of two APs is $(n + 1):(n - 1)$, then the ratio of their m^{th} terms is:

(a) $(m + 1):2m$ (b) $(m + 1):(m - 1)$

(c) $(2m - 1):(m + 1)$ **(d) $m:(m - 1)$**

Q93. In a G.P. If the fourth term is '3' then the product of first seven terms is

(a) 3^5 **(b) 3^7** (c) 3^6 (d) 3^8

Q94. If $2 + 6 + 10 + 14 + 18 + \cdots\ldots + x = 882$ then x=?

(a) 78 (b) 80 **(c) 82** (d) 86

Q95. If $y = 1 + x + x^2 + \ldots\ldots \infty$ then x =

(a) $\frac{y-1}{y}$ (b) $\frac{y+1}{y}$ (c) $\frac{y}{y+1}$ (d) $\frac{y}{y-1}$

Dec 2019

Q96. If $\frac{(b+c-a)}{a}, \frac{(c+a-b)}{b}, \frac{(a+b-c)}{c}$ are in AP then a, b, c are in:

(a) AP (b) GP **(c) HP** (d) None

Q97. Sum of. $\frac{1}{2} + \frac{1}{3^2} + \frac{1}{2^3} + \frac{1}{3^4} + \frac{1}{2^5} + \cdots . + \infty$

(a) 19/24 (b) 24/19 (c) 5/24 (d) None

Q98. Sum the series $\frac{1}{5}, \frac{1}{5^2}, \frac{1}{5^3} \ldots\ldots \frac{1}{5^n}$

(a) $\frac{1}{4}\left[1 - \left(\frac{1}{5}\right)^n\right]$ (b) $\frac{1}{5}\left[1 - \left(\frac{1}{4}\right)^n\right]$

(c) both (d) None

Q99. No. of terms of series 25, 5, 1 ..... $\frac{1}{3125}$

(a) 6 (b) 7 **(c) 8** (d) 9

Q100. If the sum of 5 terms of AP is 75. Find 3^{rd} term

(a) 35 (b) 30 **(c) 15** (d) 20

Q101. If AM & GM of two numbers is 6.5 & 6 the no.'s are:

(a) 3 & 2 **(b) 9 & 4** (c) 81 & 16 (d) None

Q102. If AM & HM for two numbers are 5 & 3.2, respectively. GM will be:

(a) 20 (b) 16 **(c) 4** (d) 5

Dec 2020

Q103. Three numbers in G.P. with their Sum 130 and their product 27,000 are:

(a) 10,30,90 (b) 90,30,10

(c) (a) and (b) both (d) 10,20,30

Q104. Find 20^{th} term of AP whose 6^{th} term is 38 & 10^{th} term is 66.

(a) 118 **(b) 136** (c) 178 (d) 210

Q105. Divide 69 into 3 parts which are in A.P. & are such that the product of first two parts is 460:

(a) 20, 23, 26 (b) 21,23,25

(c) 19,23,27 (d) 22,23,24

Jan 2021

Q106. n^{th} terms of series $3 + 7 + 13 + 21 + 31 + \ldots\ldots$is

(a) $4n - 1$ (b) $n^2 + 2n$

(c) $n^2 + n + 1$ (d) $n^3 + 2$

Q107. The number of integers from 1 to 100 which are neither divisible by 3 nor by 5 nor by 7 is

(a) 67 **(b) 45** (c) 55 (d) 33

Q108. In a GP 3rd & 6th terms are respectively 1 & -1/8. The a & r are respectively.
(a) 4 & $\frac{1}{2}$ (b) 4 & $\frac{-1}{4}$ **(c) 4 & $\frac{-1}{2}$** (d) 4 & $\frac{1}{4}$

July 2021

Q109. The sum of three numbers in a GP is 28. When 7, 2 & 1 are subtracted from the 1st, 2nd & the 3rd numbers respectively, then the resulting numbers are in AP. What is the sum of squares of original numbers?
(a) 510 (b) 456 (c) 400 **(d) 336**

Q110. The number of terms of the series: $5 + 7 + 9 + \ldots$ must be taken so that the sum may be 480.
(a) 20 (b) 10 (c) 15 (d) 25

Q111. The sum of square of any real positive quantities & its reciprocal is never less than
(a) 1 **(b) 2** (c) 3 (d) 4

Q112. Sum of 'n' terms of an AP is $2n^2$, 5th term is ____.
(a) 20 (b) 50 **(c) 18** (d) 25

Dec 2021

Q113. If sum & product of three numbers in G.P. are 7 & 8 respectively, then 4th term of the series is
(a) 6 (b) 4 **(c) 8** (d) 16

Q114. Sum of $7 + 14 + 21 + \cdots$ to 17th term is:
(a) 1071 (b) 971 (c) 1171 (d) 1271

Q115. Sum of first n terms an AP is $3n^2 + 5n$. The series is:
(a) 8, 14, 20, 26, ... (b) 8,22,42,68 ....
(c) 22,68,114, ... (d) 8,14,28,44, ...

Q116. Largest value of n for which $\frac{1}{2} + \frac{1}{2^2} + \cdots \frac{1}{2^n} < 0.998$ is
(a) 9 (b) 6 (c) 7 **(d) 8**

June 2022

Q117. nth term of series 9,7,5, ... & 15,12,9, ... are same. Find the nth term?
(a) 7 (b) 8 (c) 9 (d) 10

Q118. The sum of 1st 8 terms of a G.P is 5 times the sum of the first 4 terms. Find common ratio?
(a) $\pm\sqrt{2}$ (b) 16 (c) $\pm\sqrt{20}$ (d) 4

Q119. In a GP, 2nd term is 12 & 6th term is 192, Find 11th term
(a) 3072 **(b) 6144** (c) 1536 (d) 12288

Q120. The 1st & last terms of an AP are 5 & 905, sum of the terms is 45,955. The number of terms is
(a) 99 **(b) 101** (c) 100 (d) 102

Dec 2022

Q121. If pth term of an AP is q & its qth term is p, then what will be the value of $(p+q)^{th}$ term?
(a) 0 (b) 1 (c) $p + q - 1$ (d) $2(p + q - 1)$

Q122. In GP 5th term is 27 & 8th term is 729. Find 11th term?
(a) 729 (b) 6561 (c) 2187 **(d) 19683**

June 2023

Q123. If 9th & 19th term of an AP are 35 & 75, respectively, then its 20th term is:
(a) 78 **(b) 79** (c) 80 (d) 81

Q124. How many no. between 74 & 25,556 are divisible by '5'
(a) 5090 **(b) 5097** (c) 5095 (d) 5075

Q125. If 4th, 7th & 10th terms of a GP are p, q & r, respectively, then:
(a) $p^2 = q^2 + 2^r$ (b) $p^2 = qr$
(c) $q^2 = pr$ (d) $pqr + pq + 1 = 0$

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Set Functions & Relations

TO BUY HARDCOPY OF PYQs

SCAN ME

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Nov 2006

Q1. Out of 20 members in a family, 11 like to take tea & 14 like coffee. Assume that each one likes at least one of the two drinks. Find how many like both coffee & tea:

(a) 2 (b) 3 (c) 4 **(d) 5**

Feb 2007

Q2. In a group of 70 people, 45 speak Hindi, 33 speak English & 10 speak neither Hindi nor English. Find how many can speak both English as well as Hindi.

(a) 13 (b) 19 **(c) 18** (d) 28

Q3. Let R is the set of real numbers, such that the function f: R→R & g: R → R are defined by $f(x) = x^2 + 3x + 1$ & $g(x) = 2x - 3$. Find (fog):

(a) $4x^2 + 6x + 1$ (b) $x^2 + 6x + 1$

(c) $4x^2 - 6x + 1$ (d) $x^2 - 6x + 1$

May 2007

Q4. Out of 300 companies, number of companies using different media - Newspapers (N), Radio (R) & Television (T) are as follows: n(N) = 200, n(R) = 100, n(T) = 40, n(N∩R) = 50, n(R∩T) = 20, n(N∩T) = 25 & n(N∩R∩T) = 5. Find the numbers, of companies using none of these media:

(a) 20 (b) 250 (c) 30 **(d) 50**

Q5. If R is the set of real numbers such that the function f: R → R is defined by $f(x) = (x + 1)^2$, then find (fof):

(a) $(x+1)^2 + 1$ (b) x^2+1 **(c) $\{(x+1)^2 + 1\}^2$** (d) None

Aug 2007

Q6. If f: R → R, f(x) = 2x + 7, then inverse of f is ___.

(a) $f^{-1}(x) = (x - 7)/2$ (b) $f^{-1}(x) = (x + 7)/2$

(c) $f^{-1}(x) = (x - 3)/2$ (d) None

Nov 2007

Q7. In a town of 20,000 families, 40% families buy newspaper A, 20% families buy newspaper B & 10% families buy newspaper C, 5% families buy A & B, 3% buy B & C & 4% buy A & C. If 2% families buy all three newspapers, number of families which buy A only is:

(a) 6600 (b) 6300 (c) 5600 (d) 600.

Q8. Let f: R → R be such that $f(x) = 2^x$, then f (x + y) =

(a) f(x) + f(y) **(b) f(x).f(y)** (c) f(x) ÷ f (y) (d) None

Feb 2008

Q9. Out of 150 students, 45 passed in Accounts, 30 in Eco & 50 in Maths, 30 in both Accounts & Maths, 32 in both Maths & Eco, 35 in both Accounts & Eco, 25 students passed in all the three subjects. Find the numbers who passed at least in any one of the subjects:

(a) 63 **(b) 53** (c) 73 (d) None.

June 2008

Q10. If $f(x) = \frac{2+x}{2-x}$, then $f^{-1}(x)$:

(a) $\frac{2(x-1)}{x+1}$ (b) $\frac{2(x+1)}{x-1}$ (c) $\frac{x+1}{x-1}$ (d) $\frac{x-1}{x+1}$

Dec 2008

Q11. If A = {1,2, 3, 4,}, B = {2, 4, 6, 8,}, f (1) = 2, f (2) = 4, f (3) = 6 & f (4) = 8, & f: A → B then f^{-1} is:

(a) {(2,1), (4,2), (6,3), (8,4)} (b) {(1,2), (2,4), (3,6), (4,8)}

(c) {(1,4), (2,2), (3,6), (4,8)} (d) None of these

Q12. If $f(x) = x^2 + x-1$ & $4f(x) = f(2x)$ then find 'x'.

(a) 4/3 **(b) 3/2** (c) - ¾ (d) None

Q13. If A = {p, q, r, s}, B = {q, s, t}, C = {m,q,n}, Find C-(A ∧ B)

(a) {m, n} (b) {p, q} (c) {r, s} (d) {p, r}

Dec 2009

Q14. X = {x, y, w, z}, y = {1,2,3,4}, H = {(x, 1), (y, 2), (y, 3), (z, 4), (x, 4)}

(a) H is a function from X to Y

(b) H is not a function from X to Y

(c) H is a relation from Y to X

(d) None

Q15. f(x) = (2x + 3), then f(2x) - 2f(x) + 3 =

(a) 3 (b) 2 (c) 1 **(d) 0**

Q16. If f(x) = 2x + h then find f(x+h) - 2f (x)

(a) h - 2x (b) 2x – h (c) 2x + h (d) None

June 2010

Q17. If A = {x : x^2 - 3x + 2 = 0}, B = {x : x^2 + 4x - 12 = 0}, then, B - A =

(a) {- 6} (b) {1} (c) {1,2} (d) {2,-6}

Q18. If F: A → R is a real valued $f(x) = \frac{1}{x}$, then, A = ___.

(a) R (b) R-{1} **(c) R-{0}** (d) R-N

Q19. In set N of all natural numbers the relation R defined by a R b "if & only if, a divide b", then the relation R is:

(a) Partial order relation (b) Equivalence relation

(c) Symmetric relation **(d) None of these.**

Dec 2010

Q20. For any two sets A & B, A∩ (A' ∪B) = ___, where A' represent the compliment of the set A

(a) A∩B (b) A∪B (c) A'∪B (d) None

Q21. f(x) = x + 1 & $g(x) = x^2 + 1$, then fog(-2) =

(a) 6 (b) 5 (c) -2 (d) None

Dec 2010

Q22. If A⊂B, then which one is true

(a) A∩B=B **(b) A∪B=B** (c) A∩B=A^1 (d) A∩B =ϕ

Q23. If f(x-1) = x^2 - 4x + 8, then f(x+1) =

(a) x^2+8 (b) x^2+7 **(c) x^2+4** (d) x^2- 4x

June 2011

Q24. There are 40 students, 30 of them passed in English, 25 of them passed in Maths & 15 of them passed in both. Assuming that every Student has passed at least in one subject. How many students passed in English only but not in Maths.

(a) 15 (b) 20 (c) 10 (d) 25

Q25. If A = {± 2, ± 3}, B = {1,4,9} & F = {(2, 4), (-2, 4), (3, 9), (-3, 4)} then 'F' is defined as:

(a) One to one function from A into B.

(b) One to one function from A onto B.

(c) Many to one function from A onto B.

(d) Many to one function from A into B.

Q26. If f(x) = $\frac{x}{\sqrt{1+x^2}}$ & g(x) = $\frac{x}{\sqrt{1-x^2}}$ Find fog?

(a) x (b) $\frac{1}{x}$ (c) $\frac{x}{\sqrt{1-x^2}}$ (d) $x\sqrt{1-x^2}$

Dec 2011

Q27. f(x) = 3+x, for - 3< x <0 & 3 - 2x for 0< x <3, f(2) =

(a) – 1 (b) 1 (c) 3 (d) 5

Q28. If A = (1, 2, 3, 4, 5), B = (2, 4) & C = (1,3, 5) then (A - C) × B is

(a) {(2, 2), (2, 4), (4, 2), (4, 4), (5, 2), {5, 4)}

(b) {(1,2), (1,4), (3, 2), (3, 4), (5, 2); (5, 4)}

(c) {(2, 2), (4, 2), (4, 4), (4, 5)}

(d) {(2, 2), (2, 4), (4, 2), (4, 4)}

Q29. For any two sets A & B the set (AUB')' is Equal to (where' denotes compliment of the set)

(a) B-A (b) A–B (c) A'-B' (d) B'-A'

June 2012

Q30. No. of proper sub-set of the set {3, 4, 5, 6, 7} is __.

(a) 32 **(b) 31** (c) 30 (d) 25

Q31. On set of lines, being perpendicular is a __ relation. (a) Reflexive **(b) Symmetric** (c) Transitive (d) None

Q32. Range of function f: N-N; f(x)=(- 1)$^{x-1}$, is

(a) {0,-1} **(b) {1,-1}** (c) {1,0} (d) {1,0, -1}

Q33. For a group of 200 persons, 100 are interested in music, 70 in photography & 40 in swimming, Furthermore 40 are interested in both music & photography, 30 in both music & swimming, 20 in photography & swimming & 10 in all the three. How many are interested in photography but not in music & swimming?

(a) 30 (b) 15 (c) 25 **(d) 20**

Dec 2012

Q34. If f: R → R is a function, defined by f (x) = 10x - 7, if g(x) = f^{-1}(x), then g(x) is equal to

(a) $\frac{1}{10x-7}$ (b) $\frac{1}{10x+7}$ **(c) $\frac{x+7}{10}$** (d) $\frac{x-7}{10}$

Q35. Number of elements in range of constant function is

(a) One (b) Zero **(c) Infinite** (d) 2

June 2013

Q36. Let A = {1,2, 3}, then the relation R = {1,1), (2, 3), (2, 2), (3, 3), (1,2)} is:

(a) Symmetric (b) Transitive **(c) Reflexive** (d) None

Q37. If f(x) = x + 2, g(x) = 7^X, then g o f(x)= ____

(a) 7^x. x + 2.7^x (b) 7^x + 2 **(c) 49 (7^X)** (d) None

Q38. If f(x) = $\log\left(\frac{1+x}{1-x}\right)$, then f$\left(\frac{2x}{1+x^2}\right)$ is equal to:

(a) f(x) **(b) 2f(x)** (c) 3f(x) (d) -f(x)

Dec 2013

Q39. If f (x) = (a - x^n)$^{1/n}$, a > 0 & 'n' is a positive integer, then f(f(x)) = _____.

(a) x (b) a (c) $x^{1/n}$ (d) $a^{1/n}$

Q40. Of the 200 candidates who were interviewed for a position at call centre, 100 had a two-wheeler, 70 had a credit card & 140 had a mobile phone, 40 of them had both a two-wheeler & a credit card, 30 had both a credit card & a mobile phone, 60 had both a two-wheeler & a mobile phone, & 10 had all three. How many candidates had none of the three?

(a) 0 (b) 20 **(c) 10** (d) 18

Q41. If f(x) = $\frac{x^2-25}{x-5}$, then f(5) is

(a) 0 (b) 1 (c) 10 **(d) not defined**

June 2014

Q42. Let A = {1,2,3} & B = {6,4,7}. Then, the relation R = {(2,4), (3,6)} will be:

(a) Function from A to B (b) Function from B to A

(c) Both A & B (d) Not a function

Q43. In class of 50 students, 35 opted for Mathematics & 37 opted for Commerce. Number of such students who opted for both Maths & Commerce are

(a) 13 (b) 15 **(c) 22** (d) 28

Q44. The range of {(1,0), (2,0), (3,0), (4,0), (0,0)} is:
(a) {1,2,3,4,0} **(b) {0}** (c) {1,2,3,4} (d) None

Dec 2014

Q45. Let N be the set of all-Natural numbers; E be the set of all even natural numbers then the function, f: N → E defined as f (x) = 2x +/x ∈N is:
(a) One-one into **(b) One-one onto**
(c) Many-one into (d) Many-one onto

Q46. If A = {2, 3}, B = {4, 5}, C = {5, 6}, then A × (B ∩ C) = ___
(a) {(5, 2), (5, 3)} **(b) {(2, 5), (3, 5)}**
(c) {(2, 4), (3, 5)} (d) {(3, 5), (2, 6)}

Q47. If S = {1, 2, 3} then the relation {(1, 1), (2, 2), (1, 2), (2, 1)} is symmetric &
(a) Reflexive but not transitive
(b) Reflexive as well as transitive
(c) Transitive but not reflexive
(d) Neither transitive nor reflexive

Q48. If f(x) = then $\frac{x}{x-1}$, then $\frac{f(x/y)}{f(y/x)}$ = _____
(a) x/y (b) y/x **(c) -x/y** (d) -y/x

June 2015

Q49. If N be the set of all-natural numbers & E be the set of all even natural numbers then the function f: N → E, such that f (x) = 2x for all X ∈ N is
(a) one-one onto (b) one-one into
(c) many-one onto (d) constant

Q50. If A = {x, y, z}, B = {a, b, c, d}, then which of the following relation from the set A to set B is a function?
(a) {(x, a), (x, b), (y, c), (z, d)} **(b) {(x, a), (y, b), (z, d)}**
(c) {(x, c), (z, b), (z, c)} (d) {a, z), (b, y), (c, z), (d, x)}

Dec 2015

Q51. In a class of 80 students, 35% students can play only cricket, 45% students can play only table tennis & the remaining students can play both the games. In all how many students can play cricket?
(a) 55 **(b) 44** (c) 36 (d) 28

Q52. If f(x) = 2x + 2 & g(x) = x^2, then the value of fog (4) is:
(a) 18 (b) 22 **(c) 34** (d) 128

June 2016

Q53. If set A = $\left\{x: \frac{x}{2} \in z, 0 \le x \le 10\right\}$, B = {x: x is one-digit prime number} & C = $\left\{x: \frac{x}{3} \in N, x \le 12\right\}$, then A ∩ (B∩C) =
(a) ϕ (b) Set A (c) Set B (d) Set C

Q54. Let A be the set of squares of natural numbers & let x∈A, y∈A then
(a) X + Y∈A (b) X-Y∈A (c) $\frac{X}{Y} \in A$ **(d) xy ∈ A**

Q55. Domain & range of the function f(x) = 2 - |x + 1| is
(a) D = Real numbers, R = (2, ∞)
(b) D = Integers, R = (0, 2)
(c) D = Integers, R = (- ∞, ∞)
(d) D = Real numbers, R = (- ∞, 2)

Dec 2016

Q56. If R is the set of all real numbers, then the function f: R→R defined by f(x) = 2^x
(a) one-one onto **(b) one-one into**
(c) many-one into (d) many-one onto

Q57. The inverse function f^{-1} of f(x) = 100x is
(a) $\frac{x}{100}$ (b) $\frac{1}{100x}$ (c) $\frac{1}{x}$ (d) None

Q58. No. of subsets of set formed by word ALLAHABAD is:
(a) 128 (b) 16 **(c) 32** (d) 64

June 2017

Q59. Range of function f(x) = $\frac{x}{x^2+1}$ is: **[IMP]**
(a) $\left\{x: \frac{-1}{2} < x < \frac{1}{2}\right\}$ (b) $\left\{x: \frac{-1}{2} \le x < \frac{1}{2}\right\}$
(c) $\left\{x: \frac{-1}{2} \le X \le \frac{1}{2}\right\}$ (d) $\left\{x: x > \frac{1}{2} \text{ or } x < \frac{-1}{2}\right\}$

Q60. In a group of students 80 can speak Hindi, 60 can speak English & 40 can speak English & Hindi both, then number of students is:
(a) 100 (b) 140 (c) 180 (d) 60

Q61. If f(x) = $\frac{x-1}{x}$ & g(x) = $\frac{1}{1-x}$ then (fog).(x) is equal to:
(a) x - 1 **(b) x** (c) 1 - x (d) – x

Dec 2017

Q62. If f(x) = $\frac{x+1}{x+2}$, then $f\left\{f\left(\frac{1}{x}\right)\right\}$ = ___.
(a) $\frac{2x+3}{3x+5}$ (b) $\frac{2x+5}{3x+2}$ **(c)** $\frac{3x+2}{5x+3}$ (d) $\frac{5x+2}{2x+3}$

Q63. In a class of 35 students, 24 like to play cricket & 16 like to play football. Also, each student likes to play at least one of the two games. How many students like to play both cricket & football?
(a) 5 (b) 11 (c) 19 (d) 8

June 2018

Q64. Let N be the set of all natural numbers; E be the set of all even natural numbers then the function; F: N ⇒ E defined as f(x) = 2x – Vx ∈ N is =
(a) One-one-into (b) Many-one-into
(c) One-one onto (d) Many-one-onto

Q65. In a town of 20,000 families, it was found that 40% families buy newspaper. A, 20% families buy newspaper B & 10% families buy newspaper C, 5% families buy A & B, 3% buy B & C & 4% buy A & C if 2% families buy all the 3 newspapers, then the no. of families which buy A only is:
(a) 6600 (b) 6300 (c) 5600 (d) 6000

Q66. No. of proper sub set of set {3,4,5,6,7} is
(a) 32 **(b) 31** (c) 30 (d) 25

Dec 2018

Q67. A is {1,2,3,4} & B is {1,4,9,16,25} if a function f is defined from set A to B where $f(x) = x^2$ then range of f is:
(a) {1,2,3,4} **(b) {1, 4, 9, 16}**
(c) {1,4,9,16,25} (d) None

Q68. If $A = \{1,2\}$ & $B = \{3,4\}$. Determine the number of relations from A & B:
(a) 3 **(b) 16** (c) 5 (d) 6

Q69. If $A = \{1,2,3,4,5,6,7\}$ & $B = \{2,4,6,8\}$. Cardinal number of $A - B$ is:
(a) 4 (b) 3 (c) 9 (d) 7

Q70. Identity the function from the following:
(a) {(1,1), (1,2), (1,3)} (b) {(1,1), (2,1), (2,3)}
(c) {(1, 2), (2, 2), (3, 2), (4, 2)} (d) None of these

June 2019

Q71. If $A = \{1,2,3,4,5,6,7,8,9\}$ $B - \{1,3,4,5,7,8\}$; $C = \{2,6,8\}$ then find $(A - B) \cup C$
(a) {2,6} (b) {2,6,8} **(c) {2, 6, 8, 9}** (d) None

Q72. $A = \{1 \quad 2 \quad 3 \quad 4 \quad \ldots.10\}$ relation on $A, R = \{(x,y)/ x + y = 10, x \in A, Y \in A, x \geq Y\}$ then domain of R^{-1} is.
(a) {1, 2, 3, 4, 5} (b) {0,3,5,7,9}
(c) {1,2,4,5,6,7} (d) None

Q73. The no. of subsets of the set {3,4,5} is
(a) 4 **(b) 8** (c) 16 (d) 32

Q74. If $f(x) = x^2$ & $g(x) = \sqrt{x}$ then
(a) gof(3) = 3 (b) $gof(-3) = 9$
(c) $gof(9) = 3$ (d) $gof(-9) = 3$

Q75. If $A = \{a, b, c, d\}$; $B = \{p, q, r, s\}$ which of the following relation is a function from A to B
(a) $R_1 = \{(a, p), (b, q), (c, s)\}$
(b) $R_2 = \{(p, a), (b, r), (d, s)\}$
(c) $R_3 = \{(b, p), (c, s), (b, r)\}$
(d) $R_4 = \{(a, p), (b, r), (c, q), (d, s)\}$

Dec 2019

Q76. $(A^T)^T = ?$
(a) A (b) A^T (c) $A^T \cdot A^T$ (d) A^{2T}

Q77. $f(n) = f(n-1) + f(n-2)$ when $n = 2,3,4$ ..... $f(0) = 0, f(1) = 1$ then $f(7) = ?$
(a) 3 (b) 5 (c) 8 **(d) 13**

Q78. $f(x) = \frac{x+1}{x}$ find $f^{-1}(x)$
(a) $1/(x-1)$ (b) $1/(y-1)$ (c) $\frac{1}{y} - 1$ (d) x

Dec 2020

Q79. Two finite sets respectively have x & y no. of elements. Total no. of subsets of the 1st is 56 more than the total no. of subsets of the 2nd. The value of x & y respectively.
(a) 6 & 3 (b) 4 & 2 (c) 2 & 4 (d) 3 & 6

Q80. Number of items in set A is 40; in set B is 32; in set C is 50; in both A & B is 4, in both A & C is 5; in both B & C is 7 in all the sets 2. How many are in only one set?
(a) 110 (b) 65 **(c) 108** (d) 84

Q81. The set of cubes of the natural number is:
(a) A null set (b) A finite set
(c) An infinite set (d) None

Q82. The inverse function f^{-1} of $f(y) = 3y$ is:
(a) 1/3y **(b) y/3** (c) -3y (d) 1/y

Jan 2021 (Same as Q81 Dec 2020)

Q83. The set of cubes of natural number is
(a) Null set (b) A finite set
(c) An infinite set (d) Singleton Set

Q84. In the set of all straight lines on a plane which of the following is Not 'TRUE'?
(a) Parallel to an equivalence relation
(b) Perpendicular to is a symmetric relation
(c) Perpendicular to is an equivalence relation
(d) Parallel to a reflexive relation

Q85. Let $F: R \Rightarrow R$ be defined by

$$f(x) = \begin{cases} 2x \text{ for } x > 3 \\ x^2 \text{ for } 1 < x \leq 3 \\ 3x \text{ for } x \leq 1 \end{cases}$$

The value of $f(-1) + f(2) + f(4)$ is
(a) 9 (b) 14 (c) 5 (d) 6

Q86. The number of integers from 1 to 100 which are neither divisible by 3 nor by 5 nor by 7 is.
(a) 67 (b) 55 **(c) 45** (d) 33

July 2021

Q87. Range of function F defined by $f(x) = \sqrt{16 - x^2}$ is

(a) $[-4,0]$ **(b) $[-4,4]$** (c) $[0,4]$ (d) $[+4,4]$

Q88. Let $A = R - \{3\}$ & $B = R - \{1\}$. Let $f(x) \to B$ defined by $f(x) = \frac{x-2}{x-3}$, then $f^{-1}\left(\frac{1}{2}\right) = ?$

(a) 2/3 (b) ¾ **(c) 1** (d) -1

Q89. If $F(x) = x^2 - 1$ & $g(x) = |2x + 3|$, then $F \circ g(3) - g$ of $(-3) = ?$

(a) 71 **(b) 61** (c) 41 (d) 51

Q90. Let U be the universal set, A & B are the subsets of U. If $n(U) = 650$, $n(A) = 310$, $n(A \cap B) = 95$ & $n(B) = 190$, then $n(A \cap B)$ is equal to ($\bar{A}$ & B are the complement of A & B respectively):

(a) 400 (b) 200 (c) 300 **(d) 245**

Dec 2021

Q91. Out of a group of 20 teachers in a school, 10 teach Mathematics, 9 teach Physics & 7 teach Chemistry. 4 teach Mathematics & Physics but none teach both Mathematics & Chemistry. How many teach Chemistry & Physics; how many teach only Physics?

(a) 2,3 (b) 3,2 (c) 4,6 (d) 6,4

Q92. If a is related to b if & only if the difference in a & b is an even integer. This relation is

(a) symmetric, reflexive but not transitive
(b) symmetric, transitive but not reflexive
(c) transitive, reflexive but not symmetric
(d) equivalence relation

Q93. If $u(x) = \frac{1}{1-x}$, then $u^{-1}(x)$ is:

(a) $\frac{1}{x-1}$ (b) $1 - x$
(c) $1 - \frac{1}{x}$ (d) $\frac{1}{x} - 1$

June 2022

Q94. $f(x) = \{(2,2); (3,3); (4,4); (5,5); (6,6)\}$ be a relation of set $A = \{2,3,4,5,6\}$ It is a:

(a) Reflexive & Transitive (b) Reflexive & Symmetric
(c) Reflexive only (d) Equivalence relation

Q95. If $f(y) = \frac{y-1}{y}$, find $f^{-1}(x)$.

(a) $\frac{1}{1-y}$ (b) y (c) $\frac{y}{y-1}$ (d) $\frac{y}{1-y}$

Q96. 2 finite sets have x & y number of elements. The total no. of subsets of 1st is 56 more than the total no. of subsets of 2nd. The value of x & y is:

(a) 6 & 3 (b) 4 & 2 (c) 2 & 4 (d) 3 & 4

Q97. $A = \{2,3\}, B = \{4,5\}, C = \{5,6\}$ $A \times (B \cap C) =$

(a) $\{(2,5), (3,5)\}$ (b) {(5,2), (5,3)}
(c) {(2,3), (5,5)} (d) None

Q98. If universal set $E = \{x: x \text{ is a positive integer} < 25\}$, $A = \{2,6,8,14, 22\}$, $B = \{4,8,10,14\}$

(a) $(A \cap B)' = A' \cup B'$ (b) $(A \cap B)' = A' \cap B'$
(c) $(A' \cap B') = \varphi$ (d) none of these

Dec 2022

Q99. If $A = \{1,2,3,4,5,7,8,9\}$ & $B = \{2,4,6,7,9\}$ then how many proper subsets of $A \cap B$ can be created?

(a) 16 **(b) 15** (c) 32 (d) 31

Q100. Let $A = \{1,2,3\}$ & consider relation $R = \{(1,1), (2,2), (3,3), (1,2), (2,3), (1,3)\}$. Then R is

(a) Symmetric & transitive
(b) Reflexive but not transitive
(c) Reflexive but not symmetric
(d) Neither symmetric, nor transitive

Q101. The number of subsets of the set {0, 1, 2, 3} is

(a) 2 (b) 4 (c) 8 **(d) 16**

June 2023

Q102. Given the relation $R = \{(1,2), (2,3)\}$ on the set $A = \{1,2,3\}$, minimum number of ordered parts which when added to R make it Equivalence relation is:

(a) 5 (b) 6 **(c) 7** (d) 8

Q103. A survey shows that 74% of Indian like grapes, & 68% like bananas. What % of Indian like both grapes & bananas if everybody likes either fruit?

(a) 42% (b) 26% (c) 58% (d) 62%

Q104. If R be a relation defined on set of Real numbers as " $xRy - (x - y)$ is divisible by 5" $\forall x, y, \in R$ then relation R is:

(a) Equivalence
(b) Anti symmetric
(c) Symmetric but not transitive
(d) Symmetric but not reflexive

Q105. If $A = \{a, b, c\}, B = \{b, c, d,\}$ & $C = \{a, d, c\}$, then $(A - B) \times (B \cap C)$ is equal to

(a) $\{(a, d), (c, d)\}$ **(b) $\{(a, c), (a, d)\}$**
(c) $\{(c, a), (d, a)\}$ (d) $\{(a, c), (a, d), (b, d)\}$

Q106. If $f(x): N - R$ is a function defined as $f(x) = 4x + 3, \forall x \in N$, then $f^{-1}(x)$ is

(a) $4 + \frac{x+3}{4}$ (b) $\frac{x+3}{4}$ **(c) $\frac{x-3}{4}$** (d) $\frac{3x+3}{4}$

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Differential Calculus

TO BUY HARDCOPY
OF PYQs

SCAN ME

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Nov 2006

Q1. The slope of the tangent at the point (2, -2) to the curve $x^2 + xy + y^2 - 4 = 0$ is given by:

(a) 0 **(b) 1** (c) -1 (d) None

Q2. The derivative of $x^2 \log x$ is :

(a) 1+2 log x (b) 2 log x

(c) x (1 + 2 log x) (d) None of these

Feb 2007

Q3. If $x = y \log (xy)$, then $\frac{dy}{dx}$ is equal to:

(a) $\frac{x+y}{x(1+\log xy)}$ **(b)** $\frac{x-y}{x(1+\log xy)}$

(c) $\frac{x+y}{x(\log x+\log y)}$ (d) $\frac{x-y}{x(\log x+\log y)}$

Q4. If $y = 2x + \frac{4}{x}$, then $x^2\frac{d^2y}{dx^2} + X\frac{dy}{dx} - y$ yields

(a) 3 (b) 1 **(c) 0** (d) 4

May 2007

Q5. If $f(x) = x^k$ and $f'(1) = 10$, then the value of k is :

(a) 10 (b) -10 (c) 1/10 (d) None

Q6. Given $x = 2t + 5; y = t^2 - 2$, then $\frac{dy}{dx}$ is calculated as:

(a) t (b) 1/t (c) 1/t (d) None

Aug 2007

Q7. If $x^y = y^x$, then $\frac{dy}{dx}$ gives:

(a) $\frac{x(x\log y - y)}{y(y\log x - x)}$ **(b)** $\frac{x(y\log x - x)}{y(x\log y - y)}$

(c) $\frac{y(x\log y - y)}{x(y\log x - x)}$ (d) None of these

Q8. If $x^3 - 2x^2y^2 + 5x + y = 5$, then $\frac{dy}{dx}$ at x=1 & y=1 is:

(a) 4/3 (b) -5/4 (c) 4/5 (d) -4/3

Nov 2007

Q9. If $y = \left(x + \sqrt{x^2 + m^2}\right)^n$ then $\frac{dy}{dx} =$:

(a) $\frac{ny}{\sqrt{x^2+m^2}}$ (b) n y

(c) $-\frac{ny}{\sqrt{x^2+m^2}}$ (d) None

Q10. If xy (x - y) = 0, find & $\frac{dy}{dx}$:

(a) $\frac{y(2x-y)}{x(2y-x)}$ (b) $\frac{x(2x-y)}{y(2y-x)}$

(c) $\frac{y(2y-x)}{x(2x-y)}$ (d) None of these

Q11. If $y = \sqrt{x}^{\sqrt{x}^{\sqrt{x}\cdots\infty}}$ then $\frac{dy}{dx}$ is equal to:

(a) $\frac{y^2}{\log x}$ (b) $\frac{y^2}{2-y\log x}$ **(c)** $\frac{y^2}{x(2-y\log x)}$ (d) None

Q12. If $y = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \ldots\ldots + \frac{x^n}{n} + \ldots\ldots\ldots$ then $y.\frac{dy}{dx} =$

(a) 1 (b) 1 **(c) 0** (d) None

Feb 2008

Q13. The slope of the tangent to the curve $y = \sqrt{4 - x^2}$ at the point, where the ordinate and the abscissa are equal, is:

(a) -1 (b) 1 (c) 0 (d) None

June 2008

Q14. Differentiate $e^{(x^x)}$:

(a) (1 + log x) (b) x^x (1 + log x)

(c) $e^{(x^x)}$ **(1 + log x)x^x** (d) $e^{(x^x)}$ (1 + log x)

Q15. If $x^m y^n = (x + y)^{m+n}$, then find $\frac{dy}{dx}$:

(a) $\frac{x}{y}$ **(b)** $\frac{y}{x}$ (c) xy (d) None

Dec 2008

Q16. If $f(x) = a^x x^a$ then find f '(x).

(a) f (x) [a + log a] (b) f (x) $\left[\frac{a}{x} - \log a\right]$

(c) f (x) $\left[\frac{a}{x} - \log a\right]$ (d) f (x) [a + x log a]

June 2009

Q17. If $x^3y^2 = (x - y)^5$. Find $\frac{dy}{dx}$ at (1,2).

(a) -7/9 (b) 7/9 (c) 9/7 (d) -9/7

Dec 2009

Q18. $x = 2t + 5$ and $y = t^2 - 5$, then $\frac{dy}{dx} = ?$

(a) t (b) -1/t (c) 1/t (d) 0

Q19. $x = at^2$ $y = 2$ at, $\frac{dy}{dx} = ?$

(a) 1/t (b) -1/t (c) t (d) None

Q20. Find the second derivative of $y = \sqrt{x+1}$

(a) ½ $(x + 1)^{-1/2}$ **(b)** $-1/4(x + 1)^{-3/2}$

(c) $1/4(x + 1)^{-1/2}$ (d) None of these.

June 2010

Q21. If $x^2 + y^2 = 4$ then

(a) $y\frac{d^2y}{dx^2} - \left(2\frac{dy}{dx}\right)^2 + 1 = 0$ **(b)** $y\frac{d^2y}{dx^2} + \left(\frac{dy}{dx}\right)^2 + 1 = 0$

(c) $y\frac{d^2y}{dx^2} - \left(\frac{dy}{dx}\right)^2 - 1 = 0$ (d) $y\frac{d^2y}{dx^2} + 2\left(\frac{dy}{dx}\right)^2 + 1 = 0$

Dec 2010

Q22. The cost function for the production of x units of a commodity is given by $C(x) = 2x^3 - 15x^2 + 36x + 15$

The cost will be minimum when 'x' is equal to

(a) 3 (b) 2 (c) 1 (d) 4

June 2011

Q23. If $f(x) = {}^{x}C_3$; then $f'(1) = ?$

(a) $\frac{1}{6}$ **(b) $\frac{-1}{6}$** (c) $\frac{5}{6}$ (d) $\frac{-5}{6}$

Q24. If $f'(x) = 3x^2 - \frac{2}{x^3}, f(1) = 0$ & $f(x) =$ ____.

(a) $\frac{x^3}{3} - x^2 - 2$ (b) $x^3 + x^2 + 2$

(c) $x^3 + x^{-2} - 2$ (d) None of these.

Dec 2011

Q25. $\frac{d}{dx}[2^{\log_2 x}] =$ _____

(a) 1 (b) 0 (c) 1/2 (d) $2^x \cdot \log_2 x$

Q26. If $Y = X^x$ then $\frac{d^2Y}{dx^2} =$ _____

(a) $\frac{dy}{dx}(1 + \log x) + y\frac{d}{dx}(1 + \log x)$

(b) $\frac{dy}{dx}(1 + \log x) + \frac{d}{dx}(1 + \log x)$

(c) $\frac{dy}{dx}(1 + \log x) - y\frac{d}{dx}(1 + \log x)$

(d) $\frac{dy}{dx}(1 + \log x) - \frac{d}{dx}(1 + \log x)$

June 2012

Q27. If $x = ct, y = c/t$, then $\frac{dy}{dx}$ is equal to:

(a) 1/t (b) $t.e^t$ **(c) -1/t2** (d) None

Q28. If $y = e^{a\log x} + e^{x\log a}$, then $\frac{dy}{dx} =$

(a) $x^a + a^x$ **(b) $ax^{a-1} + a^x \log a$**

(c) $ax^{a-1} + xa^{x-1}$ (d) $x^x + a^a$.

Dec 2012

Q29. For the functions $y = x^3 - 3x$, the value of $\frac{d^2y}{dx^2}$ at which $\frac{dy}{dx}$ is zero, is

(a) ± 1 (b) ± 3 **(c) ± 6** (d) None

Q30. The equation of the tangent to the curve, $f = x^3 - 2x + 3$, at the point (2,7) is -

(a) $y = 2x - 13$ (b) $y = 10x$

(c) $y = 10x - 13$ (d) $y = 10$

Q31. If $y = \log\left(\frac{5-4x^2}{3+5x^2}\right)$, then $\frac{dy}{dx} =$ _____

(a) $\frac{8}{4x-5} - \frac{10}{3+5x}$ (b) $(4x^2 - 5) - (3 + 5x^2)$

(c) $\frac{8x}{4x^2-5} - \frac{10x}{3+5x^2}$ (d) $8x - 10$

June 2013

Q32. If $y = \log_y x$, then $\frac{dy}{dx}$ is equal to:

(a) $\frac{1}{x+\log y}$ **(b) $\frac{1}{x+x\log y}$**

(c) $\frac{1}{1+x\log y}$ (d) $\frac{1}{y+\log x}$

Q33. If $x = \log t, y = e^t$, then $\frac{dy}{dx} =$

(a) 1/t **(b) $t.e^t$** (c) - 1/t2 (d) None

June 2014

Q34. If $y = ae^{nx} + be^{-nx}$, then $\frac{d^2y}{dx^2} =$ ____.

(a) n^2y (b) $-n^2y$ (c) ny (d) None

Dec 2014

Q35. If $y = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \ldots\ldots + \frac{x^n}{n}$ then $\frac{dy}{dx} - y =$ ___

(a) 1 **(b) 0** (c) 2 (d) -1

June 2015

Q36. If $x^p y^q = (x + y)^{p+q}$, then $\frac{dy}{dx}$ is equal to _____

(a) $\frac{q}{p}$ (b) $\frac{x}{y}$ **(c) $\frac{y}{x}$** (d) $\frac{p}{q}$

Q37. If $e^{xy} - 4xy = 4$ then $\frac{dy}{dx} =$ _____

(a) $\frac{y}{x}$ **(b) $\frac{-y}{x}$** (c) $\frac{x}{y}$ (d) $\frac{-x}{y}$

Dec 2015

Q38. If $u = 3t^4 + 5t^3 + 2t^2 + t + 4$, then at $t = -1$, $\frac{du}{dt} =$

(a) 0 (b) 1 (c) 2 (d) 5

Q39. Slope of tangent to the curve $y = \frac{x-1}{x+2}$ at $x = 2$ is:

(a) $\frac{3}{16}$ (b) $-\frac{3}{16}$ (c) $\frac{1}{4}$ (d) $-\frac{1}{4}$

June 2016

Q40. If $y = \sqrt{\frac{1-x}{1+x}}$, then $\frac{dy}{dx}$ is equal to -

(a) $\frac{y}{x^2-1}$ (b) $\frac{y}{1-x^2}$

(c) $\frac{y}{1+X^2}$ (d) $\frac{y}{y^2-1}$

Dec 2016

Q41. Differential Co-efficient of $\log_e(\sqrt{x-1} + \sqrt{x+1})$ with respect to x is:

(a) $\frac{1}{2\sqrt{x^2-1}}$ (b) $\frac{1}{2\sqrt{x^2+1}}$

(c) $\frac{1}{2(x^2-1)}$ (d) $\frac{1}{\sqrt{x-1}+\sqrt{x+1}}$

Q42. If $f(x) = \log_{10}\left(\frac{x-1}{x+1}\right)$, then the value of x at which $f'(x) = 1$, is

(a) 0 (b) 1 **(c) $\pm\sqrt{3}$** (d) $\pm\sqrt{2}$

June 2017

Q43. Equation of the curve which passes through the point (1,2) & has the slope $3x - 4$ at any point (x, y) is:

(a) $2y = 3x^2 - 8x + 9$ (b) $y = 6x^2 - 8x + 9$

(c) $y = x^2 - 8x + 9$ (d) $2y = 3x^2 - 8x + c$

Q44. If $x = at^3 + bt^2 - t$ & $y = at^2 - 2bt$, then $\frac{dy}{dx}$ at $t = 0$ is:

(a) 2b (b) $-2b$ (c) $\frac{1}{2b}$ (d) $-\frac{1}{2b}$

Dec 2017

Q45. If $x^y = e^{x-y}$ then $\frac{dy}{dx}$ is equal to:

(a) $\frac{2\log x}{(1+\log x)^2}$ (b) $\frac{\log x}{(1+\log x)}$

(c) $\frac{\log x}{(1+\log x)^2}$ (d) None of the above

Q46. If $y = 1 + \frac{x}{|1} + \frac{x^2}{|2} + \frac{x^3}{|3} + \ldots \infty$, then $\frac{dy}{dx}$ is equal to:

(a) x **(b) y** (c) 1 (d) 0

Q47. If $x = at^2, y = 2a$ then the value of $\frac{dy}{dx}$ at $t = 2$ is:

(a) 2 (b) 4 **(c) $\frac{1}{2}$** (d) $\frac{1}{4}$

Q48. If $y = \log x^x$ then $\frac{dy}{dx}$ is equal to:

(a) log ex (b) $\log \frac{e}{x}$ (c) $\log \frac{x}{e}$ (d) 1

June 2018

Q49. The cost function for the production of x units of a commodity is given by $C(x) = 2x^3 + 15x^2 + 36x + 15$ The cost will be minimum. When 'x' is equal to:

(a) 3 (b) 2 (c) 1 (d) 4

Dec 2018

Q50. Let $x = at^3, y = \frac{a}{t^2}$. Then $\frac{dy}{dx} =$

(a) $\frac{-1}{t^6}$ (b) $\frac{-3a}{t^6}$ (c) $\frac{1}{3at^6}$ **(d) None**

Q51. $xy = 1$ then $y^2 + \frac{dy}{dx} = ?$

(a) 1 **(b) 0** (c) 2 (d) None

June 2019

Q52. If the given cost function of commodity is given by $C = 150\,x - 5x^2 + \frac{x_3}{6}$, where C stands for cost and x stands for output, if the average cost is equal to the marginal cost then the output x = _____.

(a) 5 (b) 10 **(c) 15** (d) 20

Q53. If $2^x - 2^y = 2^{x-y}$ then $\frac{dy}{dx}$ at $x = y = 2$

(a) 1 (b) 2 (c) 4 (d) 5

Dec 2019

Q54. $\frac{d}{dx}(x \cdot \log x)$

(a) $x(1 + \log x)$ **(b) $1 + \log x$**

(c) $e^x x \cdot \log x$ (d) $x^2(\log x)$

Q55. Differentiate x^x w.r.t x.

(a) $x^x(1 + \log x)$ (b) y/x

(c) -y/x (d) $y + x^x \log x$

Dec 2020

Q56. If $y = x(x-1)(x-2)$ then dy/dx is:

(a) $-6x$ **(b) $3x^2 - 6x + 2$**

(c) $6x + 4$ (d) $3x^2 - 6x$

Q57. The average cost function of a good is $2Q + 6 + \frac{13}{Q}$ where Q is quantity produced. Approx cost at $Q = 15$ is:

(a) 42 (b) 36 **(c) 66** (d) 130

Jan 2021

Q58. The cost function of production is given by $C(x) = \frac{x^3}{2} - 15x^2 + 36x$ where x, Denotes the number of items produced. The level of output for which marginal cost is minimum and the level of output for which the average cost is minimum are given by, respectively.

(a) 10 & 15 (b) 10 & 12 (c) 12 & 15 (d) 15 & 10

July 2021

Q59. In a market there are 30 shops to allocate to people. If they allocate. X shops then their monthly expenses, in rupees, is given by $p(x) = -8x^2 + 400x - 1{,}000$, then no. of shops should they allocate to minimize the expenses:

(a) 0 (b) 30 **(c) 25** (d) 10

Q60. Cost function $C(x) = 125 + 500x - x^2 + \frac{x^3}{3} 0 \le x \le 100$ & demand, function for the items is given by, $p(x) = 1500 - x$ then marginal profit when 18 items are sold is:

(a) 751 (b) 571 **(c) 676** (d) 875

Q61. If $f(x) = 3x^4$ then $f^1(x) - 4x^3 fx + \left(\frac{1}{3}\right) f(0) - f^1(0) =$:

(a) 0 (b) ex^2 **(c) 1** (d) -1

Dec 2021

Q62. The cost for producing x units is $500 - 20x^2 + x^3/3$. The marginal cost is minimum at x = _____.

(a) 5 (b) 10 **(c) 40** (d) 50

Q63. If $y = \frac{x^4}{e^x}$ then $\frac{dy}{dx}$ is equal to:

(a) $x^3(4-x)/(e^x)^2$ **(b) $x^3(4-x)/e^x$**

(c) $x^2(4-x)/e^x$ (d) $x^3(4x-1)/e^x$

Q64. The speed of a train at a distance x (from the starting point) is given by $3x^2 - 5x + 4$. What is the rate of change (of distance) at $x = 1$?

(a) -1 (b) 0 **(c) 1** (d) 2

June 2022

Q65. What will be f(x) if $f'(x) = 10x^2 + 4x$ & $f(-3) = 17$

(a) $f(x) = \frac{10x^3}{3} + 2x^2 + 89$ (b) $f(x) = \frac{10x^3}{3} + 2x^2 + 72$

(c) $f(x) = \frac{10x^3}{3} - 2x^2 + 89$ (d) None

Q66. The derivative of the function $\sqrt{x+\sqrt{x}}$ is

(a) $\frac{1}{2\sqrt{x+\sqrt{x}}}$ (b) $1 + \frac{1}{2\sqrt{x}}$

(c) $\frac{1}{2\sqrt{x+\sqrt{x}}}\left(1 + \frac{1}{2\sqrt{x}}\right)$ (d) None of these

Dec 2022

Q67. Find the area under the curve $f(x) = x^2 + 5x + 2$ with the limits 0 to 1?

(a) 3.833 (b) 4.388 **(c) 4.833** (d) 3.338

Q68. The maxima and minima of the function $y = 2x^3 - 15x^2 + 36x + 10$ occurs respectively at:

(a) $x = 2$ and $x = 3$ (b) $x = 1$ and $x = 3$

(c) $x = 3$ and $x = 2$ (d) $x = 3$ and $x = 1$

Q69. If $y = x^x$, then dy/dx at $x = 1$ is equal to:

(a) 0 **(b) 1** (c) -1 (d) 2

Q70. If $x^5 + y^5 - 5xy = 0$ then $\frac{dy}{dx}$ is:

(a) $\frac{y+x^4}{x+y^4}$ **(b) $\frac{y-x^4}{y^4-x}$** (c) $\frac{x-y^4}{x^1-y}$ (d) $\frac{x+y^4}{x^4+y}$

June 2023

Q71. For a given curve $y = 2 - x^2$. When 'x' increases at the rate of 3 units /s, then slope of curve will:

(a) Increase at 6 units/s (b) Increase at 3units/s

(c) Decrease at 6 units/s (d) Decrease at 3 units/s

Q72. If $xy = 1$ then $y^3 =$ dy/dx is equal to:

(a) 1 **(b) 0** (c) -1 (d) 12

Q73. If $y = \frac{x}{x+5}$, then $\frac{dx}{dy}$ is equal to:

(a) $\frac{5}{(1-y)^2}$ (b) $\frac{5}{(1+y)^2}$ (c) $\frac{3}{(1-y)^2}$ (d) $\frac{3}{(1+y)^2}$

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Integral Calculus

TO BUY HARDCOPY OF PYQs

SCAN ME

Click here

Nov 2006

Q1. $\int_0^1 (e^x + e^{-x})\,dx$ is :

(a) e - e^{-1} (b) e^{-1} – e (c) e + e^{-1} (d) None

Q2. $\int \frac{8x^2}{(x^3+2)^3}\,dx$ is equal to:

(a) $-\frac{4}{3}(x^3+2)^2 + C$ **(b) $-\frac{4}{3}(x^3+2)^{-2} + C$**

(c) $\frac{4}{3}(x^3+2)^2 + C$ (d) None of these

Feb 2007

Q3. Evaluate : $\int \frac{dx}{\sqrt{x^2+a^2}}$:

(a) $\frac{1}{2}\log(x+\sqrt{x^2+a^2}) + C$ **(b) $\log(x+\sqrt{x^2+a^2}) + C$**

(c) $\log(x\sqrt{x^2+a^2}) + C$ (d) $\frac{1}{2}\log(x\sqrt{x^2+a^2}) + C$

Q4. the value of. $\int_0^2 \frac{\sqrt{x}}{\sqrt{x}+\sqrt{2-x}}\,dx$ is :

(a) 0 (b) 3 (c) 2 **(d) 1**

May 2007

Q5. The integral of $(e^{3x} + e^{-3x}) / e^x$ is:

(a) $\frac{e^{2x}}{2} + \frac{e^{-4x}}{4} + C$ **(b) $\frac{e^{2x}}{2} - \frac{e^{-4x}}{4} + C$**

(c) $e^{2x} - e^{-4x} + C$ (d) None of these

Q6. $\int x^2 e^{3x}\,dx$ is :

(a) $x^2.e^{3x} - 2xe^{3x} + 2e^{3x} + C$ (b) $\frac{e^{3x}}{3} - \frac{x.e^{3x}}{9} + 2e^{3x} + C$

(c) $\frac{x^2.e^{3x}}{3} - \frac{2x.e^{3x}}{9} + \frac{2}{27}e^{3x} + C$ (d) None of these

Q7. $\int_1^2 \frac{2x}{1+x^2}\,dx$:

(a) $\log_e \frac{5}{2}$ (b) $\log_e 5 - \log_e 2 + 1$

(c) $\log_e \frac{2}{5}$ (d) None of these

Aug 2007

Q8. The value of $\int_1^e \frac{(1+\log x)}{x}\,dx$ is: [Given Loge =1]

(a) ½ **(b) 3/2** (c) 1 (d) 5/2

Q9. Find $\int \frac{x^3}{(x^2+1)^3}\,dx$:

(a) $\frac{1}{4}\left[\frac{2x^2+1}{(x^2+1)^2}\right]$ **(b) $\frac{1}{4}\left[\frac{2x^2+1}{(x^2+1)^2}\right]$**

(c) $\frac{1}{2}\left[\frac{2x^2+1}{(x^2+1)^2}\right]$ (d) $-\frac{1}{2}\left[\frac{2x^2+1}{(x^2+1)^2}\right]$

Nov 2007

Q10. $\int \frac{1}{x^2-a^2}\,dx$ is:

(a) log (x - a) - log (x+ a) + C (b) log x - $\frac{a}{x+a}$ + C

(c) $\frac{1}{2a}$ Log $\left(\frac{x-a}{x+a}\right)$ + C (d) None of these

Q11. The value of $\int_0^1 \frac{dx}{(1+x)(2+x)}$ is:

(a) log $\frac{3}{4}$ **(b) log $\frac{4}{3}$** (c) log 12 (d) None

Feb 2008

Q12. The value of $\int_2^3 f(5-x)dx - \int_2^3 f(x)\,dx$ is:

(a) 1 **(b) 0** (c) -1 (d) None

Q13. $\int \frac{e^{\log e^x}}{x}\,dx$ is:

(a) $x^{-1} + C$ **(b) x + C** (c) $x^2 + C$ (d) None

June 2008

Q14. Evaluate $\int \frac{1}{(x-1)(x-2)}\,dx$:

(a) log $\left(\frac{x-2}{x-1}\right)$ + C (b) log [(x- 2) (x -1)] + C

(c) log $\left(\frac{x-1}{x-2}\right)$ + C (d) None

Q15. $\int_1^4 (2x+5)dx$ and the value is:

(a) 10 (b) 3 **(c) 30** (d) None

Dec 2008

Q16. $\int \frac{1}{x(x^5+1)}\,dx$

(a) $\log\left(\frac{x^5}{x^5-1}\right) + C$ **(b) $\frac{1}{5}\log\left(\frac{x^5}{x^5+1}\right) + C$**

(c) $\frac{1}{3}\log\left(\frac{x^5}{x^5+1}\right) + C$ (d) $\frac{1}{3}\log\left(\frac{x^5+1}{x^5}\right) + C$

June 2009

Q17. Find the value of $\int_3 x\sqrt{8-x^2}\,dx$

(a) 1 (b) -1 **(c) 0** (d) None

Q18. Evaluate $\int xe^x dx$

(a) $e^x(x+1) + c$ **(b) $e^x(x-1) + c$**

(c) $e^x + c$ (d) $x - e^x + c$

Q19. Find $\int \frac{x^3}{(x^2+1)^3}\,dx$

(a) $1/4(x^2+1)^{-2} + 1/2(x^2+1)^{-1} + c$

(b) $1/4(x^2+1)^{-1} - 1/2(x^2+1) + c$

(c) $1/4(x^2+1)^{-2} - 1/2(x^2+1)^{-1} + c$

(d) None of these

Dec 2009

Q20. $\int \left(\sqrt{x} + \frac{1}{\sqrt{x}}\right)dx$

(a) $2x^{1/2}\left(\frac{1}{3}x - 1\right)$ **(b) $2x^{1/2}\left(\frac{1}{3}x + 1\right)$**

(c) $2\left(\frac{1}{3}x + x^{1/2}\right)$ (d) None of these.

Q21. $\int_0^1 \left(\frac{1-x}{1+x}\right) dx$

(a) $2\log 2 - 1$ (b) $4\log 2 - 1$
(c) $2\log 2$ (d) None of these

June 2010

Q22. Equal to $\int \frac{dx}{\sqrt{3x+4-\sqrt{3x+1}}}$

(a) $\frac{2}{27}\left[(3x+4)^{32} - (3x+1)^{3/2}\right] + c$
(b) $\frac{2}{27}\left[(3x+4)^{3/2} + (3x+1)^{3/2}\right] + c$
(c) $\frac{2}{3}\left[(3x+4)^{3/2} - (3x+1)^{3/2}\right] + c$
(d) None of these.

Q23. $\int_1^2 \frac{xdx}{x^2+2} =$ ____

(a) $\log \sqrt{2}$ (b) $\log \sqrt{3}$
(c) $\log \frac{1}{\sqrt{2}}$ (d) $\log \frac{1}{\sqrt{3}}$

Dec 2010

Q24. $\int \frac{6x+4}{(x-2)(x-3)} dx$ is equal to

(a) $22\log(x-3) - 16(x-2)$
(b) $11\log(x-3) - 8(x-2)$
(c) $22\log(x-3) - 16\log(x-2)$
(d) $22\log(x-3) + 16\log(x-2)$

Q25. $\int \frac{1}{x(1+\log x)^2} dx$ is equal to

(a) $-\frac{1}{2(1+\log x)^2} + c$ (b) $\frac{1}{(1+\log x)} + c$
(c) $-\frac{1}{(1+\log x)} + c$ (d) None of these

June 2011

Q26. Solve: $\int_{-1}^1 (e^x - e^{-x})dx$

(a) 0 (b) 1 (c) 12 (d) None

Q27. Solve: $\int \frac{(\log x)^2}{x^3} \cdot dx$

(a) $\frac{3}{2}(\log x)^3 + c$ **(b) $\frac{1}{3}(\log x)^3 + c$**
(c) $\frac{1}{6}(\log x)^3 + c$ (d) $\frac{3}{7}(\log x)^3 + c$

June 2011

Q28. Given, $y = \int (e^{a\log x} + e^{x\log a})dx$; then $\frac{dy}{dx}$

(a) $x^a a^x$ **(b) $x^a + a^x$**
(c) $ax^{x-1} + a^x \log a$ (d) None of the above.

Dec 2011

Q29. $\int_{-1}^1 \frac{|x|}{x} dx =$ _____

(a) -1 **(b) 0** (c) 1 (d) 2

Q30. $\int \frac{e^x}{(1+x)^3} dx - \int \frac{e^x}{2(1+x)^2} dx =$ _____

(a) 0 (b) $\frac{e^x}{2(1+x)^2} + c$
(c) $-\frac{e^x}{2(1+x)^2} + c$ (d) $\frac{e^x}{(1+x)^2} + c$

June 2012

Q31. $\int_0^1 \frac{dx}{Qax+b(1-x).^2} =$ _____

(a) a/b (b) b/a (c) ab **(d) 1/ab**

Dec 2012

Q32. $\int 2^{3x} \cdot 3^{2x} \cdot 5^x \cdot dx =$ _____

(a) $\frac{2^{3x}.3^{2x}.5^x}{\log(720)} + c$ **(b) $\frac{2^{3x}.3^{2x}.5^x}{\log(360)} + c$**
(c) $\frac{2^{3x}.3^{2x}.5^x}{\log(180)} + c$ (d) $\frac{2^{2x}.3^{2x}.5^x}{\log(90)} + c$

June 2013

Q33. $\int_1^2 \frac{(\log_e(ex))^n}{x} dx(n+-1)$ is equal to:

(a) $\left[\frac{(\log_e(2e))^{n+1}-1}{n+1}\right]$ (b) $\left[(\log_e(2e))^{(n+1)} + 1\right]$
(c) $\frac{(\log_e(2e))^{n+1}}{n+1} - \frac{(\log_e 2)^{n+1}}{n+1}$ (d) None of these

Q34. $\int 2^{3x} \cdot 3^{2x} \cdot 5^x dx =$ _____

(a) $\frac{2^{3x}.3^{2x}.5^x}{\log(270)} + c$ **(b) $\frac{2^{3x}.3^{2x}.5^x}{\log(360)} + c$**
(c) $\frac{2^{3x}.3^{2x}.5^x}{\log(180)} + c$ (d) $\frac{2^{2x}.3^{2x}.5^x}{\log(90)} + c$

Dec 2013

Q35. $\int (a)^{2x} dx$ _____

(a) $\frac{a^{2x}}{2\log a}$ (b) $\frac{2 \cdot a^{2x}}{\log a}$ (c) $\frac{a^{2x}.\log a}{2}$ (d) None

June 2014

Q36. $\int_0^5 \frac{x^2 dx}{x^2+(5-x)^2}$ is equal to _____.

(a) 5 **(b) $\frac{5}{2}$** (c) 1 (d) None

Dec 2014

Q37. Value of definite integral $\int_0^2 |1-x| dx =$ ____

(a) 0 (b) ½ (c) 3/2 **(d) 1**

June 2015

Q38. The value of $\int_0^{1/2} \frac{dx}{\sqrt{3-2x}}$ is

(a) 1 (b) $1 - \sqrt{3/2}$
(c) $\sqrt{3} - \sqrt{2}$ (d) $\sqrt{2} - \sqrt{3}$

Q39. The value of $\int_0^2 xe^{x^2} dx$ is

(a) 1 (b) $e - 1$ (c) $(e/2) - 1$ **(d) $\frac{1}{2}(e^4 - 1)$**

Dec 2015

Q40. The value of $\int_1^2 \frac{1-x}{1+x}dx$ is equal to:

(a) $\log \frac{3}{2} - 1$ **(b) $2\log \frac{3}{2} - 1$**

(c) $\frac{1}{2}\log \frac{3}{2} - 1$ (d) $\frac{1}{2}\log \frac{2}{3} - 1$

June 2016

Q41. $\int_0^2 \frac{3^{\sqrt{x}}}{\sqrt{x}}dx$ is equal to _____

(a) $\frac{2\sqrt{2}}{\log_e^3}$ (b) 0 **(c) $\frac{2}{\log_e 3}\left(3^{\sqrt{2}} - 1\right)$** (d) $\frac{3^{\sqrt{2}}}{\sqrt{2}}$

Q42. $\int \frac{x}{(x^2+1)(x^2+2)}dx$ is equal to _____

(a) $\log\left(\frac{x^2+1}{x^2+2}\right) + c$ **(b) $\frac{1}{2}\log\left(\frac{x^2+1}{x^2+2}\right) + c$**

(c) $\frac{1}{2}\log\left(\frac{x^2+2}{x^2+1}\right) + c$ (d) $-\log\left|\frac{x^2+1}{x^2+2}\right| + c$

Dec 2016

Q43. $\int_1^e \frac{e^x(x\log_e x+1)}{x}dx$ is equal to:

(a) $e + 1$ **(b) e^e** (c) $e - 1$ (d) $e^x + 1$

June 2017

Q44. The value of $\int_1^2 \frac{x}{x^2+1}dx$ is equal to:

(a) $\log_e\left(\frac{5}{2}\right)$ **(b) $\frac{1}{2}\log_e\left(\frac{5}{2}\right)$**

(c) $\log_e(5) - \log_e 2 + c$ (d) None of these

Dec 2017

Q45. Value of $\int e^x[f(x) + f'(x)]dx$ = _____

(a) $e^x f(x) + c$ (b) $e^x f'(x) + c$

(c) $\left[\frac{f'(x)}{f(x)}\right] + c$ (d) $e^x\left[\frac{f(x)}{f'(x)}\right] + c$

Dec 2017

Q46. $\int x \cdot e^{x^2}dx$ is equal to:

(a) $2e^{x^2+c}$ (b) e^{x^2+c} **(c) $\frac{1}{2} \cdot e^{x^2+c}$** (d) $xe^{x^2} + c$

June 2018

Q47. Value of $\int_1^2 \frac{1-x}{1+x}dx$ is equal to:

(a) $\log \frac{3}{2} - 1$ **(b) $2\log \frac{3}{2} - 1$**

(c) $\frac{1}{2}\log \frac{3}{2} - x$ (d) $\frac{1}{2}\log \frac{2}{3} - 1$

Q48. $\int_0^2 \frac{3^{\sqrt{x}}}{\sqrt{x}}dx$ is equal to

(a) $\frac{2\sqrt{2}}{\log_e 3}$ (b) 0 **(c) $\frac{2(3\sqrt{2}-1)}{\log_6 3}$** (d) $\frac{3\sqrt{2}}{\sqrt{2}}$

Q49. The value of $\int_0^2 \frac{\sqrt{x}}{\sqrt{x}+\sqrt{2-x}}dx$ is:

(a) 0 (b) 3 (c) 2 **(d) 1**

Dec 2018

Q50. $\int x(x^2+4)^5dx$ is equal to

(a) $(x^2+4)^6 + c$ **(b) $\frac{1}{12}(x^2+4)^6 + c$**

(c) $\frac{1}{6}(x^2+4)^6 + c$ (d) None of the above

Q51. $\int_{-1}^3 (1 + 3x - x^3)dx$

(a) -4 (b) 4 (c) 3 (d) -3

June 2019

Q52. $\int_2^3 \frac{\sqrt{x}}{\sqrt{5-x}+\sqrt{x}}dx =$

(a) 1 **(b) ½** (c) 2 (d) 3/2

Q53. $\int e^x(x^2 + 2x)dx =$

(a) $x^x \cdot e^2 + c$ (b) $e^x \cdot x + c$

(c) $-e^x x^2 + c$ (d) $-e^x \cdot x + c$

Q54. $\int \log(a^x)dx =$

(a) $\log a\left(\frac{x^2}{2}\right) + c$ (b) $\log a\left(\frac{x}{2}\right) + c$

(c) $x\log a^x - x + c$ (d) $x\log a^x + c$

Dec 2019

Q55. $\int a^x dx$.

(a) $x^x(1 + \log x)$ (b) $1 + \log x$

(c) $x \cdot \log x$ **(d) $\frac{a^x}{\log a} + c$**

Q56. $\int x \cdot e^x dx$.

(a) $e^x(x-1) + c$ (b) $e^x \cdot x + e^x + c$

(c) $\log x + e^x + c$ (d) $\frac{x^2}{e^x} + c$

Q57. $\int (4x+3)^6 dx$.

(a) $\frac{1}{28}(4x+3)^7 + c$ (b) $\frac{1}{7}(4x+3)^7 + c$

(c) $\frac{1}{6}(4x+3)^6 + c$ (d) $\frac{4x}{5} + \frac{3}{5} + c$

Q58. $\int_{-1}^{\dagger}(2x^2 - x^3)dx$.

(a) 4/3 (b) 1 (c) 2 (d) 2/3

Q58. $\int x^2 \cdot e^x dx$.

(a) $2x \cdot e^x$ (b) $e^x(x^2 - 2x)$

(c) $x^2 \cdot e^x - e^x \cdot (2x) + 2$ (d) $e^x(x-1)$

Dec 2020

Q59. $\int x \cdot e^x dx$ is equal

(a) $e^x(x+1) + c$ (b) $e^x(x+2) + c$

(c) $e^x(x-1) + c$ (d) None

Q60. $\int e^x(x\log x+1)\cdot x^{-1}dx$ is equal to

(a) e^x+c **(b) $e^x\log x+c$**

(c) $\frac{e^x}{\log x}+c$ (d) $e^x(\log x)^2+c$

Q61. $\int_2^8 \frac{\sqrt{x}}{\sqrt{x}+\sqrt{10-x}}dx$ is equal to

(a) 4 **(b) 3** (c) 2 (d) None

Jan 2021

Q62. $\int_1^2 e^x\left(\frac{1}{x}-\frac{1}{x^2}\right)dx=$

(a) $e\left(\frac{e}{2}-1\right)$ (b) e (e-1)

(c) a (d) $e^2(e-i)$

July 2021

Q63. The value of $\int_{-2}^{2} f(x)dx$, where $f(x)=1+n, x\le 0, f(x)=1-2x, n\ge 0$ is:

(a) 20 **(b) -2** (c) -4 (d) 0

Dec 2021

Q64. Integrate with respect to x, $1/[x(\log x)^2]$.

(a) $-1/\log x+k$ (b) $1/\log x+k$

(c) $\log x$ (d) x

June 2022

Q65. $\int_0^1 \int xe^x dx$ is equal to:

(a) 0 (b) 2 **(c) 1** (d) 3

June 2022

Q66. $\int (\log x)^2 dx$ is equal to:

(a) $x(\log x)^2-2x\log x+2x+c$

(b) $x(\log x)^2+2x\log x-2x+c$

(c) $x(\log x)^2-2x\log x-x+c$

(d) None

Dec 2022

Q67. $\int (2x-3)^5 dx$ is:

(a) $\frac{(2x-3)^6}{6}$ (b) $\frac{(2x-3)^6}{2}$ **(c) $\frac{(2x-3)^6}{12}$** (d) $\frac{(2x-3)^6}{3}$

Q68. $\int_2^4 \frac{xdx}{x^2+1}$ is:

(a) $\frac{1}{2}\log\left(\frac{17}{5}\right)$ (b) $2\log\left(\frac{17}{5}\right)$

(c) $\frac{1}{2}\log\left(\frac{5}{17}\right)$ (d) $2\log\left(\frac{5}{17}\right)$

June 2023

Q69. Evaluate the integral $\int \frac{1}{(x-1)(y-2)}dx$:

(a) $\log\frac{(x-2)}{(x-1)}+c$ (b) $\log Q(x-2)(x-1).+c$

(c) $\log\frac{(x-1)}{(x-2)}+c$ (d) $\log Q(x-2)(x+1).+c$

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Statistical Description of Data

TO BUY HARDCOPY OF PYQs

SCAN ME

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Nov 2006

Q1. Quickest method to collect primary data:
(a) Personal Interview (b) Indirect Interview
(c) Mailed Questionnaire **(d) Telephonic Interview**

Q2. Which of the following statement is true?
(a) Statistics is derived from the French word 'Statistic
(b) Statistics is derived from the Italian word 'Statista'.
(c) Statistics is derived from the Latin word 'Statistique'.
(d) None of these.

Q3. Following data relates to the incomes of 90 persons:

Income in Rs.:	1500-1999	2000-2499	2500-2999	3000-3499
No. of Persons:	13	32	20	25

What is the % of persons earning more than Rs. 2,500?
(a) 45 **(b) 50** (c) 52 (d) 55

Feb 2007

Q4. In tabulation, source of data is shown in:
(a) Stub **(b) Footnote** (c) Caption (d) None

Q5. Divided bar chart is good for:
(a) Comparing various components of a variable
(b) Relating the different components to the whole.
(c) (a) and (b) (d) (a) or (b)

May 2007

Q6. Relative frequency for a particular class lies between:
(a) 0 & 1 (b) -1 & 1 (c) -1 & 0 (d) None

Q7. Find the number of observations between 350 and 400 from the following' data:

Value:	> 200	> 350	> 400	> 450
No. of observations:	48	25	12	0

(a) 13 (b) 15 (c) 17 (d) 19

Q8. When width of all classes is same, frequency polygon has not the same area as the Histogram:
(a) False (b) True (c) Both (d) None

Q9. The graphical representation of a cumulative frequency distribution is called:
(a) Histogram **(b) Ogive** (c) Both (d) None

Aug 2007

Q10. A table has parts.
(a) Four (b) Two **(c) Five** (d) None

Q11. Cost of sugar in a month under heads raw materials, labour, direct production & others were 12, 20, 35 & 23 units respectively. What is the difference between central angles for the largest & smallest components of the cost of sugar?
(a) 72° (b) 48° (c) 56° **(d) 92°**

Q12. Frequency density corresponding to a class interval is the ratio of:
(a) Class Frequency to the Total Frequency
(b) Class Frequency to the Class Length
(c) Class Length to the Class Frequency
(d) Class Frequency to the Cumulative Frequency.

Nov 2007

Q13. In order to compare two or more related series, we consider:
(a) Multiple Bar Chart (b) Grouped Bar Chart
(c) (a) or (b) (d) (a) and (b)

Q14. An area diagram is:
(a) Histogram (b) Ogive
(c) Frequency Polygon (d) None of these

Q15. Most extreme values which would ever be included in a class interval are called:
(a) Class Interval (b) Class Limits
(c) Class Boundaries (d) None of these.

Q16. In 2000, out of total of 1,750 workers of a factory, 1,200 were members of a trade union. Number of women employed was 200 of which 175 did not belong to a trade union. In 2004, there were 1,800 employees who belong to a trade union & 50 who did not belong to trade union. Of all the employees in 2004, 300 were women of whom only 8 did not belong to trade union. On basis of this information, ratio of female members of trade union in 2000 & 2004 is:
(a) 292: 25 (b) 8: 175 (c) 175:8 **(d) 25:292**

Feb 2008

Q17. The lower-class boundary is:
(a) An upper limit to Lower Class Limit
(b) A lower limit to Lower Class Limit
(c) Both (a) & (b) (d) None of these

Q18. Distribution of profits of a co. follow:
(a) J - shaped frequency curve
(b) U - shaped frequency curve
(c) Bell - shaped frequency curve
(d) Any of these

Q19. Out of 1000 persons, 25% were industrial workers & the rest were agricultural workers. 300 persons enjoyed world cup matches on T.V. 30 per cent of the people who had not watched world cup matches were industrial workers. What is the number of agricultural workers who had enjoyed world cup matches on TV?
(a) 230 (b) 250 (c) 240 **(d) 260**

Q20. Median of a distribution can be obtained from;
(a) Histogram (b) Frequency Polygon
(c) Less than type Ogives (d) None of these

June 2008

Q21. In indirect oral investigation:
(a) Data is not capable of numerical expression
(b) Not possible or desirable to approach informant directly.
(c) Data is collected from the books.
(d) None of these

Q22. Circular diagrams are always:
(a) One - dimensional **(b) Two - dimensional**
(c) Three - dimensional (d) Cartograms

Q23. Column headings of a table are known as
(a) Body (b) Stub
(c) Box-head **(d) Caption**

Q24. Some important sources of secondary data are:
(a) International and Government sources
(b) International and primary sources
(c) Private and primary sources
(d) Government sources

Dec 2008

Q25. From following data find no. of class intervals if class length is given as 5. 73, 72, 65, 41,54, 80, 50, 46, 49, 53.
(a) 6 (b) 5 (c) 7 **(d) 8**

Q26. Most appropriate diagram to represent data relating to monthly expenditure on different items by a family is:'
(a) Histogram **(b) Pie-diagram**
(c) Frequency polygon (d) Line graph.

Q27. Which of following is a statistical data?
(a) Ram is 50 years old.
(b) Height of Ram is 5'6" & of Shyam & Hari is 5'3" & 5'4" respectively.
(c) Height of ham is 5'6" & weight is 90kg
(d) Sale of A was more than B & C.

Q28. Sales of XYZ Ltd. for 4 months is:

Months	Sales
Jan.	10,000
Feb.	15,000
May	18,000

The above data represents:
(a) Discrete (b) Continuous **(c) Individual** (d) None

June 2009

Q29. Mid values are also called ____
(a) Lower limit (b) Upper limit **(c) Class mark** (d) None

Q30. Which is not a two-dimensional figure?
(a) Line Diagram **(b) Pie Diagram**
(c) Square Diagram (d) Rectangle Diagram

Q31. Less than type & more than type Ogives meet at a point known as:
(a) Mean **(b) Median** (c) Mode (d) None

Dec 2009

Q32. Arrange dimensions of Bar diagram, Cube diagram, Pie diagram in sequence.
(a) 1,3,2 (b) 2,1,3 **(c) 2, 3, 1** (d) 3,2,1

Q33. With the help of histogram one can find.
(a) Mean (b) Median **(c) Mode** (d) Q1

Q34. Nationality of a person is:
(a) Discrete variable **(b) An attribute**
(c) Continuous variable (d) None

Q35. If we plot less than and more than type frequency distribution, then the graph plotted is ___.
(a) Histogram (b) Frequency Curve
(c) Ogive (d) None of these

June 2010

Q36. The primary rules that should be observed in classification
(i) As far as possible, the class should be of equal width
(ii) The classes should be exhaustive
(iii) The classes should be unambiguously defined.
Then which of the following is correct
(a) only (i) and (ii) **(b) only (ii) and (iii)**
(c) only (i) and (iii) (d) all (i), (ii) and (iii)

Q37. Using Ogive Curve, we can determine
(a) Median (b) Quartile **(c) Both** (d) None.

Dec 2010

Q38. Mode can be obtained from
(a) Frequency polygon. **(b) Histogram.**
(c) Ogive (d) All of the above

Q39. The data obtained by the internet are
(a) Primary data **(b) Secondary data**
(c) Both (a) and (b) (d) None of these.

Q40. The statistical measure computed from the sample observations alone have been termed as
(a) estimate (b) parameter **(c) statistic** (d) attribute.

June 2011

Q41. When the two curves of ogive intersect, the point of intersection provides:
(a) Q1 **(b) Q2** (c) Q3 (d) Mode.

Q42. Frequency Density can be termed as:
(a) Class frequency to the cumulative frequency
(b) Class frequency to the total frequency
(c) Class frequency to the class length
(d) Class length to the class frequency.

Q43. Chronological classification of data is classified on the basis of:
(a) Attributes (b) Class Interval **(c) Time** (d) Area

Q44. Arrange the following dimension wise: pie-diagram, bar-diagram and cubic diagram.
(a) 1,2,3 (b) 3,1,2 (c) 3,2,1 **(d) 2, 1, 3**

Dec 2011

Q45. Frequency of class 20 – 30 in given data is

Class	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Cumulative Frequency	5	13	28	34	38

(a) 5 (b) 28 **(c) 15** (d) 13

Q46. The Graphical representation by which median is calculated is called
(a) Ogive Curve (b) Frequency Curve
(c) Line diagram (d) Histogram

Q47. Which of the following is not a two-dimensional diagram?
(a) Square diagram **(b) Line diagram**
(c) Rectangular diagram (d) Pie-chart

June 2012

Q48. From which graphical representation, we can calculate partition values?
(a) Lorenz curve **(b) Ogive curve**
(c) Histogram (d) None of the above.

Q49. The data given below refers to the marks gained by a group of students:

Marks	Below 10	Below 20	Below 30	Below 40	Below 50
No. of Students	15	38	65	84	100

The no. of students getting marks more than 30 would be?
(a) 50 (b) 53 **(c) 35** (d) 62

Q50. Cost of Sugar in a month under heads raw materials, labour, direct production & others were 12, 20, 35 & 23 units respectively. Diff between their central angles for largest & smallest components of cost of Sugar is
(a) 92 (b) 72 (c) 48 (d) 56

Dec 2012

Q51. What is a exclusive series?
(a) In which both upper & lower limit are not included in class frequency.
(b) In which lower limit is not included in class frequency.
(c) In which upper limit is not included in class frequency.
(d) None of the above.

Q52. For data on frequency distribution of weights:
70, 73, 49, 57, 56, 44, 56, 71, 65, 62, 60, 50, 55, 49, 63 & 45
If we assume class length as 5, no. of class intervals =
(a) 5 (b) 6 **(c) 7** (d) 8

June 2013

Q53. Pie diagram is used to represent the following data:

Source	Customs	Excise	Income Tax	Wealth Tax
Revenue (in million Rs.)	120	180	240	180

The central angles in the pie diagram corresponding to income tax and wealth tax respectively:
(a) $(120°, 90°)$ (b) $(90°, 120°)$
(c) $(60°, 120°)$ (d) $(90°, 60°)$

Dec 2013

Q54. Difference between maximum & minimum value of a given data is called
(a) Width (b) Size **(c) Range** (d) Class

Q55. If class interval is $10 - 14, 15 - 19, 20 - 24$, then the first class is
(a) $10 - 15$ **(b) $9.5 - 14.5$**
(c) $10.5 - 15.5$ (d) $9 - 15$

Q56. Difference between upper & lower limit of class is____.
(a) Class Interval (b) Mid Value
(c) Class boundary (d) Frequency

June 2014

Q57. There were 200 employees in an office in which 150 were married. Total male employees were 160 out of which 120 were married. What was the number of female unmarried employees?
(a) 30 **(b) 10** (c) 40 (d) 50

Q58. "The less than Ogive" is a:
(a) U-Shaped Curve (b) J-Shaped Curve
(c) S-Shaped (d) Bell Shaped Curve

Q59. Following data relates to marks of a group of students.

Marks	No. of Students
More than 70%	07
More than 60%	18
More than 50%	40
More than 40%	60
More than 30%	75
More than 20%	100

How many students have got marks less than 50% ?

(a) 60 (b) 82 (c) 40 (d) 53

Q60. To draw Histogram, frequency distribution should be

(a) Inclusive type **(b) Exclusive type**

(c) Inclusive & Exclusive type (d) None.

Dec 2014

Q61. Most appropriate diagram to represent 5- year plan outlay of India in different economic sectors is:

(a) Pie diagram (b) Histogram

(c) Line-Graph (d) Frequency Polygon

Q62. If fluctuations in observed value are very small as compared to size of the item, it is presented by

(a) Z chart (b) Ogive curve

(c) False base line (d) Control chart

Q63. For constructing a histogram, the class-intervals of a frequency distribution must be

(a) equal (b) unequal **(c) a or b** (d) none

Q64. 100 persons are classified into male/female & graduate/non-graduate classes. This data classification is:

(a) Cardinal data **(b) Ordinal data**

(c) Spatial Series data (d) Temporal data

June 2015

Q65. If we draw a perpendicular on x-axis from point of inter-section of both 'less than' & 'more than' frequency curves we will get the value of ____

(a) mode **(b) median** (c) AM (d) third quartile

Q66. Histogram is used for presentation of the following type of series

(a) Time series

(b) Continuous frequency distribution

(c) Discrete frequency distribution

(d) Individual observation

Q67. Curve obtained by joining points whose x coordinates are upper limits of the class intervals & y coordinates are the corresponding cumulative frequencies is called.

(a) Frequency Polygon (b) Frequency curve

(c) Histogram **(d) Ogive.**

Q68. The number of observations between 150 & 200 based on the following data is

Value	>100	>150	>200	>250
No. of observations	76	63	28	05

(a) 46 **(b) 35** (c) 28 (d) 23

Q69. The number of car accidents in seven days in a locality are given below:

No. of accidents:	0	1	2	3	4	5	6	7
Frequency:	12	9	11	13	8	9	6	3

No. of cases when 4 or more accidents occurred____.

(a) 32 (b) 41 **(c) 26** (d) 18

Dec 2015

Q70. Most common form of diagrammatic representation of a grouped frequency distribution is:

(a) Histogram (b) Ogive (c) Both (d) None

Q71. Classification is of ____ kinds.

(a) Two (b) Three (c) One **(d) Four**

Q72. Chart that uses logarithm of variable is known as:

(a) Ratio chart (b) Line chart

(c) Multiple line chart (d) Component line chart

Q73. Find number of observations between 250 & 300 from the following data:

Value more than:	200	250	300	500
No. of observation:	56	38	15	0

(a) 38 **(b) 23** (c) 15 (d) None

June 2016

Q74. Data collected on religion from the census reports are

(a) Primary data **(b) Secondary data**

(c) Sample data (d) (a) or (b)

Dec 2016

Q75. In collection of data which of the following interview methods:

(a) Personal interview (b) Telephone interview

(c) Published data **(d) (a) and (b)**

Q76. For constructing a histogram class interval of a frequency distribution must be of following type

(a) Equal. (b) Unequal (c) a or b (d) None

Q77. Profits made by XYZ Bank which is a blue-chip company in different years refer to:

(a) An attribute (b) A discrete variable

(c) A continuous variable (d) None of these.

Q78. Mode of presentation data

(a) Textual presentation (b) Tabulation
(c) Oral presentation **(d) (a) and (b)**

June 2017

Q79. If data represent costs spent on conducting an examination under various needs, then most suitable diagram will be:
(a) Pie diagram (b) Frequency diagram
(c) Bar diagram (d) Multiple bar diagram

Q80. Frequency density corresponding to class interval is ratio of:
(a) Class frequency to the total frequency
(b) Class frequency to the class length
(c) Class length to the class frequency
(d) Class frequency to the cumulative frequency

Q81. The point of intersection of less than ogive and greater than ogive curve gives us:
(a) Mean (b) Mode **(c) Median** (d) None

Dec 2017

Q82. 'Stub' of a table is the
(a) Left part of the table describing the columns
(b) Right part of the table describing the columns
(c) Right part of the table describing the rows
(d) Left part of the table describing the rows.

Q83. Frequency density corresponding to a class interval is the ratio of
(a) Class frequency to total frequency
(b) Class frequency to the class length
(c) Class length to class frequency
(d) Class frequency to the cumulative frequency.

June 2018

Q84. Frequency density is used in the construction of
(a) Histogram (b) Ogive
(c) Frequency polygon
(d) None when the classes are of unequal width

Q85. Divided bar chart is considered for
(a) Comparing different components of a variable
(b) The relation of different components to the table
(c) (a) or (b) **(d) (a) and (b)**

Dec 2018

Q86. The following frequency distribution is classified as

X:	12	17	24	36	45
F:	2	5	3	8	9

(a) Continuous distribution **(b) Discrete distribution**
(c) Cumulative frequency distribution (d) None

Q87. Histogram is useful to determine graphically value of
(a) AM (b) Median **(c) Mode** (d) None

Q88. Data are said to be ___ if the investigator himself is responsible for the collection of the data.
(a) Primary data (b) Secondary data
(c) Mixed of primary & secondary data
(d) None of the above

Q89. A suitable graph for representing the portioning of total into sub parts in statistics is:
(a) A Pie chart (b) A pictograph
(c) An ogive (d) Histogram

Q90. The number of times a particular item occurs in a class interval is called its:
(a) Mean **(b) Frequency**
(c) Cumulative frequency (d) None of the above

Q91. An ogive is a graphical representation of
(a) Cumulative frequency distribution
(b) A frequency distribution
(c) Ungrouped data
(d) None of the above

Q92. For class 20-30. Cumulative frequency is:

Class	0-10	10-20	20-30	30-40	40-50
Frequency	4	6	20	8	3

(a) 10 (b) 26 **(c) 30** (d) 41

June 2019

Q93. Which of the following graph is suitable for cumulative frequency distribution?
(a) Ogive (b) Histogram (c) G.M (c) A.M

Q94. Histogram can be shown as
(a) Ellipse **(b) Rectangle** (c) Hyperbola (d) Circle

Q95. _____ Series is continuous.
(a) Open ended **(b) Exclusive**
(c) Close ended (d) Unequal call intervals

Q96. Ogive graph is used for finding
(a) Mean (b) Mode **(c) Median** (d) None

Q97. Histogram is used for finding
(a) Mode (b) Mean (c) 1st quartile (d) None

Dec 2019

Q98. The graphical representation of cumulative frequency distribution is called.
(a) Histogram (b) Historiagram
(c) Ogive (d) None

Dec 2020

Q99. Average of salaries in a factory is ₹ 47,000. Statement that average salary ₹ 47,000 is ___
(a) Descriptive statics **(b) Inferential**
(c) Detailed (d) Undetailed

Q100. Statistics cannot deal with ____ data.
(a) quantitative **(b) qualitative** (c) textual (d) undetailed

Q101. Sweetness of a sweet dish is:
(a) Attribute (b) Discrete variable
(c) Continuous variable (d) Variable

Q102. Census reports are used as a source of ____ data.
(a) Secondary (b) Primary
(c) Organize (d) Confidential

Q103. Types of cumulative frequencies are:
(a) 1 **(b) 2** (c) 3 (d) 4

Q104. You are an auditor of a firm & firm earns a profit of ₹ 67,000 you stated to them that the annual profit is ₹ 67,000. This is __ type of statistics.
(a) Descriptive (b) Detailed
(c) Non detailed **(d) Inferential**

Q105. The ____ are used usually when we want to examine relationship between two variables.
(a) Bar Graph (b) Pie Chart
(c) Line Chart (d) Scatter Plot

Q106. When data are classified according to one criterion, then it is called _____ classification.
(a) quantitative (b) qualitative
(c) simple (d) factored

Jan 2021

Q107. A bar chart is drawn for
(a) Continuous data (b) Nominal data
(c) Time series data
(d) Comparing different components

Q108. A tabular presentation can be used for
(a) Continuous series data **(b) Nominal data**
(c) Time series data for longer period (d) Primary data

Q109. A variable with qualitative characteristic is known as
(a) Quality Variable **(b) An attribute**
(c) A discrete variable (d) A continuous variable

Q110. Accuracy & consistency of data can be verified by.
(a) Scrutiny (b) Internal Checking
(c) External Checking (d) Double Checking

Q111. From a histogram one cannot compute approximate value of
(a) Mode **(b) SD** (c) Median (d) Mean

Q112. Left part of a table providing description of rows is called.
(a) Caption (b) Box – head **(c) Stub** (d) Body

Q113. Mode can be obtained from ____
(a) Frequency polygon **(b) Histogram**
(c) Ogive (d) All of the above

Q114. Most of Commonly used distributions provide a__
(a) Bell – Shaped (b) U Shaped
(c) J-Shaped Curve (d) Mixed Curve

Q115. Which of the following is suitable for the graphical representation of a Cumulative frequency distribution?
(a) Frequency polygon (b) Histogram
(c) Ogive (d) Pie chart

Q116. Sweetness of sweet dish is____
(a) An Attribute (b) A discrete variable
(c) A continuous variable (d) A variable

July 2021

Q117. __ means separating items according to similar characteristics & grouping into various classes.
(a) Classification (b) Editing
(c) Separation (d) Tabulation

Q118. In graphical representation of data, ideographs are also called as:
(a) Pictographs (b) Asymmetry graphs
(c) Symmetry graphs **(d) Pictograms**

Q119. Graph that uses vertical bars to represent data is called a:
(a) Line graph (b) Scatter plot
(c) Vertical graphs **(d) Bar graph**

Q120. In a graphical representation of data, largest numerical value is 45 smallest numerical value is 25. If classes desired are 4 then which class interval is: -
(a) 45 **(b) 5** (c) 20 (d) 7.5

Q121. Frequency density of a class interval is ratio of _____
(a) Class frequency to the total frequency
(b) Class length to class frequency.
(c) Class frequency to the cumulative frequency.
(d) Frequency of that class interval to the corresponding class length.

Q122. There were 200 employees in an office in which 150 were married. Total male employees were 160 out of which

120 were married. What was the number of female unmarried employees?
(a) 30 (b) 40 (c) 50 **(d) 10**

Q123. Data collected on religion from census reports are
(a) Primary (b) Unclassified (c) Sample **(d) Secondary**

Dec 2021

Q124. In a study about the male and female students of Commerce and Science departments of a college in 5 years, the following data were obtained:

1995	2000
70% female students	75% female students
65% read Commerce	40% read Science
20% of male students read Science	50% of female students read Commerce
3000 total No. of students	3600 total No. of students

After combining 1995 & 2000 if x denotes ratio of female commerce students to female Science student & y denotes the ratio of male commerce student to male Science student, then
(a) $x = y$ (b) $x > y$ **(c) $x < y$** (d) $x \geq y$

Q125. An Institute arranged its student's data in accordance with different states. This arrangement of data is known as
(a) Temporal Data **(b) Geographical Data**
(c) Ordinal Data (d) Cardinal Data.

Q126. A student marks in five subject S1, S2, S3, S4 & S5 are 86, 79, 90, 88 & 89. If we draw a Pie chart to represent these marks, then what will be Central angle for S3?
(a) 103.2° **(b) 75°** (c) 105.6° (d) 94.8°

Q127. Ogive curves can't be used to determine
(a) Mean **(b) Median** (c) Mode (d) Range

Q128. The following data relate to the marks of a group of students:

Marks	Below 10	Below 20	Below 30	Below 40	Below 50
No. of students	15	38	65	84	100

How many students got marks more than 30?
(a) 65 (b) 50 **(c) 35** (d) 43

Q129. Marks in Statistics of 48 students are:

56	10	54	38	21	43	12	22
48	51	39	26	12	17	36	19
48	36	15	33	30	62	57	17
5	17	45	46	43	55	57	38
43	28	32	35	54	27	17	16
11	43	45	2	16	46	28	45

What are the frequency densities for the class intervals 30 – 39,40 – 49, 50 – 59 ?
(a) 0.20, 0.50, 0.90 (b) 0.70, 0.90, 1.10
(c) 0.1875, 0.1667, 0.2083 **(d) 0.90, 1.00, 0.80**

Q130. Multiple axis line chart is considered when
(a) There is more than one time series
(b) The units of the variables are different.
(c) In any case.
(d) If there are more than one time series and unit of variables are different.

June 2022

Q131. Less than 'o' give curve give -
(a) Mean **(b) Median** (c) Mode (d) MD

Q132. If a data collected from a census Report. What type of data it is: -
(a) Time series data (b) Primary data
(c) Secondary data (d) Geographical data

Q133. Sweetness is an
(a) Attribute (b) Quantity (c) Quality **(d) None**

Q134. Which of following is not a way of Presenting data?
(a) Tabular form (b) Textual form
(c) Graphical form **(d) Regression analysis**

Q135. Histogram can be drawn from
(a) Class intervals are equal
(b) Class intervals are unequal
(c) Frequency of class interval are equal
(d) None

Q136. Which of following does not form characteristics in dividing the data?
(a) No. of auditors auditing Accounts.
(b) No. of files audited by auditor
(c) No. of files audited less than 6, less than 5, less than 10
(d) Files less than, moderate than, higher than.

Q137. If the cumulative frequency are plotted on axis then which type of curve is formed
(a) Ogive (b) Frequency curve
(c) Histogram (d) Frequency Polygon

Q138. Which one is research data?
(a) Discrete & Continuous
(b) Qualitative & Quantitative
(c) Processed & Unprocessed
(d) Organize & unorganized data

Q139. Profitability of a blue-chip company is shown by –
(a) bell shape curve (b) U shake curve
(c) J shape curve (d) Mixed curve

Dec 2022

Q140. Which one of following is a source of primary data?
(a) Government Records (b) Research Articles
(c) Journals **(d) Questionnaire filled by Enumerators**

Q141. Which is the left part of the table providing the description of the rows?
(a) Caption (b) Box head **(c) Stub** (d) Body

Q142. The suitable formula for computing the number of class intervals is:
(a) 3.322log N (b) 0.322log N
(c) $1 + 3.322\log N$ (d) $1 - 3.322\log N$

Q143. Ogive for more than type and less than type distributions intersect at:
(a) Mean **(b) Median** (c) Mode (d) Origin

June 23

Q144. The share holding pattern of ABC Ltd. b as follows:

Share holders	Promoter	FII	MF	Other	Public
No. Of shares insomnious	120	25	20	20	15

Difference between central angles of Promoters and public in pie chart?
(a) 216 **(b) 189** (c) 180 (d) 99

Q145. Following is data of the daily income of 86 person

Income is ₹	500 – 999	1,000 – 1,499	1,500 – 1,999	2,000 – 2,499
No. of Persons	15	28	36	7

Percentage of person earning attests ₹ 1,500 per day?
(a) 50% (b) 45% (c) 40% (d) 60%

Q146. For tabulation caption is:
(a) The upper part of table
(b) The lower part of table
(c) The main part of table
(d) Upper part of table that describes the rows & sub rows

Q147. The mode of presentation of data are:
(a) Textual Diagrammatic and Internal presentation
(b) Tabular, textual and Internal presentation
(c) Textual, Tabular and Diagrammatic Presentation
(d) Tabular, Diagrammatic and Internal Presentation

Q148. What does an Ogive curve represent?
(a) The cumulative frequency & class boundary
(b) The frequency & class boundary
(c) The frequency & cumulative frequency
(d) The frequency & class interval

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Measures of Central Tendency & Dispersion

TO BUY HARDCOPY OF PYQs

SCAN ME

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Nov 2006

Q1. If x and y are related by x - y -10 = 0 & mode of x is known to be 23, then the mode of y is:

(a) 20 **(b) 13** (c) 3 (d) 23

Q2. A man travels at a speed of 20 km/hr & then returns at a speed of 30 km/ hr. His average speed of journey is:

(a) 25 km/ hr (b) 24.5 km/hr **(c) 24 km/hr** (d) None

Q3. A student obtained the mean & SD of 100 observations as 40 & 5.1 respectively. It was later discovered that he had wrongly copied down an observation as 50 instead of 40. The correct standard deviation is:

(a) 5 (b) 6 (c) 3 (d) 7

Q4. For a moderately skewed distribution, quartile deviation and the standard deviation are related by:

(a) S. D.= $\frac{2}{3}$ Q.D (b) S. D.= $\frac{3}{4}$ Q.D

(c) S. D.= $\frac{4}{3}$ Q.D **(d) S. D.= $\frac{3}{2}$ Q.D**

Q5. The median of the data 13, 8, 11,6, 4,15, 2, 18, is :

(a) 5 (b) 8 (c) 11 **(d) 9.5**

Feb 2007

Q6. Sum of squares of deviations of a set of observations has smallest value, when the deviations are taken from their:

(a) A.M. (b) H.M. (c) G.M. (d) None

Q7. If two samples of sizes 30 & 20 have means as 55 & 60 and variances as 16 & 25 respectively, then what would be the SD of combined sample size 50?

(a) 5.33 (b) 5.17 **(c) 5.06** (d) 5

Q8. If two variables × and y are related by 2x + 3y - 7 =O & mean & MD about mean of x are 1 & 0.3 respectively, then the co-efficient of MD of y about mean is:

(a) -5 (b) 4 **(c) 12** (d) 50

May 2007

Q9. Which of the following result hold for a set of distinct positive observations?

(a) A. M. ≥ G. M. ≥ H. M. (b) G. M. > A. M. > H. M.

(c) G. M. ≥ A.M. ≥ H. M. **(d) A. M. > G. M. > H. M.**

Q10. Measures of dispersion are called averages of _ order.

(a) 1st **(b) 2nd** (c) 3rd (d) None

Q11. For a set of 100 observations, taking assumed mean as 4, sum of the deviations is -11 cm, & sum of the squares of these deviations is 257 cm^2. Coefficient of variation is:

(a) 41.13% (b) 42.13% (c) 40.13% (d) None

Aug 2007

Q12. If the A. M, & H.M. for two numbers are 5 & 3.2 respectively then the G.M. will be:

(a) 4.05 (b) 16 **(c) 4** (d) 4,10

Q13. ____ are used for measuring central tendency, dispersion & skewness:

(a) Median **(b) Quartiles** (c) Percentiles (d) Decile

Q14. Out of companies A or B which is more consistent so far as the payment of dividend is concerned?

Dividend paid by A:	5	9	6	12	15	10	8	10
Dividend paid by B:	4	8	7	15	18	9	6	6

(a) A (b) B (c) Both A & B (d) Neither A nor B

Q15. What is the coefficient of range for

Class Interval:	10-19	20 29	30-39	40-49	50-59
Frequency:	11	25	16	7	3

(a) 22 (b) 50 (c) 75.82 **(d) 72.46**

Nov 2007

Q16. Aeroplane flies from A to B at the rate of 500 km/hr and comes back from B to A at the rate of 700 km / hr. The average speed of the aeroplane is:

(a) 600 km / hr **(b) 583.33 km / hr**

(c) $100\sqrt{35}$ km / hr (d) 620 km/hr.

Q17. For a moderately skewed distribution, which of the following relationship holds?

(a) Mean - Median = 3 (Median - Mode)

(b) Median - Mode = 3 (Mean - Median)

(c) Mean - Mode = 3 (Mean - Median)

(d) Mean - Median = 3 (Mean - Mode)

Q18. ____ & ____ are called ratio averages:

(a) H. M. & G. M. (b) H. M. &A. M.

(c) A. M. & G. M. (d) None

Q19. A sample of 35 observations has the mean 80 and S.D. as 4. A second sample of 65 observations from the same population has mean 70 and S.D. 3. The S.D. of the combined sample is:

(a) 5.85 (b) 5.58 (c) 10.23 (d) None

Q20. If x and y are related as 3x - 4y = 20 and the quartile deviation of x is 12, then the quartile deviation of y is:

(a) 14 (b) 15 (c) 16 **(d) 9**

Q21. Extreme values have ____ effect on mode.

(a) High (b) low **(c) No** (d) None

Q22. Mean salary for a group of 40 female workers is Rs. 5,200 per month & that for a group of 60 male workers is Rs. 6,800 per month. What is the combined salary?

(a) 6,160 (b) 6,280 (c) 6,890 (d) 6,920

Feb 2008

Q23. The best measure of dispersion is:

(a) QD (b) MD (c) Range **(d) SD**

Q24. Mean & SD of x are a & b respectively, then SD of $\frac{x-a}{b}$=

(a) a/b (b) -1 **(c) 1** (d) ab

Q25. Suppose a population A has 100 observations 101, 102, 103, ___200 anti another population B has 100 observations 151,152,153, 250. If VA & VB represents variance of two populations respectively, then VA / VB =

(a) 9/4 **(b) 1** (c) 4/9 (d) 2/3

June 2008

Q26. If there are two groups with 75 and 65 as harmonic means and containing 15 and 13 observations. Then the combined H.M. is given by.

(a) 70 (b) 80 (c) 70.35 (d) 69.48

Q27. The G.M. of 4, 6 & 8 is:

(a) 4.77 (b) 5.32 (c) 6.14 **(d) 5.77**

Q28. The Mean and S.D. for group of 100 observations are 65 and 7.03 respectively If 60 of these observations have mean and S.D. as 70 and 3 respectively, what is the S.D. for the group comprising 40 observations?

(a) 2.03 **(b) 4.03** (c) 8.03 (d) 9.33

Q29. The quartile deviation for the data is:

x:	2	3	4	5	6
f:	3	4	8	4	1

(a) ¼ (b) ½ **(c) 1** (d) 0

Q30. If X & Y are two random variables then v (x + y) is:

(a) v(x) + v(y) (b) v (x) + v (y)-2 v (x, y)

(c) v (x) + v (y) + 2 v (x, y) (d) v (x) - v (y)

Q31. G.M is a better measure than others when,

(a) ratios and percentages are given

(b) interval of scale is given

(c) Both (a) and (b) (d) Either (a) or (b)

Q32. Mean & SD of x is 50 & 5. Find Mean & SD of $\frac{x-50}{5}$

(a) (1,0) **(b) (0,1)** (c) (1,1) (d) (0, -1)

Dec 2008

Q33. Mean & SD of a given set of observations is 1,500 & 400 respectively. If there is an increment of 100 in first year & each observation is hiked by 20% in 2nd years, then find new mean & SD

(a) 1920, 480 (b) 1920, 580

(c) 1600,480 (d) 1600,400

Q34. If 5 is subtracted from each observation of some certain item then its co-efficient of variation is 10% & if 5 is added to each item then its coefficient of variation is 6%. Find original coefficient of variation.

(a) 8% **(b) 7.5%** (c) 4% (d) None

June 2009

Q35. The median of x, $\frac{x}{2}, \frac{x}{3}, \frac{x}{5}$ is 10. Find x where x> 0

(a) 24 (b) 32 (c) 8 (d) 16

Q36. Average salary of 50 men was ₹ 80 but it was found that salary of 2 of them were ₹ 46 & ₹ 28 which was wrongly taken as ₹ 64 & ₹ 82. Revised average salary is:

(a) 80 **(b) 78.56** (c) 85.26 (d) 82.92

Q37. Inter Quartile Range is ____ of Quartile Deviation.

(a) Half **(b) Double** (c) Triple (d) Equal

Q38. Sum of squares of deviation from mean of 10 observations is 250. Mean of the data is 10. Find the co-efficient of variation.

(a) 10% (b) 25% **(c) 50%** (d) 0%

Q39. If A be the A.M. of two positive unequal quantities X and Y and G be their G.M., then;

(a) $A < G$ **(b) $A > G$** (c) $A \leq G$ (d) $A \geq G$

Dec 2009

Q40. When mean is 3.57 & mode is 2.13, median is __.

(a) 3.09 (b) 5.01 (c) 4.01 (d) None

Q41. If L_1 = highest observation and L_2 = smallest observation, then Coefficient of Range =

(a) $\frac{L_1 \times L_2}{L_1/L_2} \times 100$ **(b) $\frac{L_1 - L_2}{L_1 + L_2} \times 100$**

(c) $\frac{L_1 + L_2}{L_1 - L_2} \times 100$ (d) $\frac{L_1/L_2}{L_1 \times L_2} \times 100$

Q42. The equation of a line is $5x + 2y = 17$. Mean deviation of y about mean is 5. Calculate MD of x about mean.

(a) -2 **(b) 2** (c) -4 (d) None

Q43. If variance of x is 5, then find variance of $(2 - 3x)$

(a) 10 **(b) 45** (c) 5 (d) -13

June 2010

Q44. The HM of 1, 1/2, 1/3 ..... 1/n is

(a) 1/(n + 1) **(b) 2/(n + 1)** (c) (n + 1)/2 (d) 1/(n - 1)

Q45. Mean weight of 15 students is 110 kg. Mean weight of 5 of them is 100 kg. & of another 5 students is 125 kg. then the mean weight of the remaining students is:

(a) 120 **(b) 105** (c) 115 (d) None

Q46. In a class of 11 students, 3 students were failed in a test. 8 students who passed secured 10,11,20,15, 12, 14, 26 & 24 marks respectively. Median marks of the students are:

(a) 12 (b) 15 (c) 13 (d) 13.5

Dec 2010

Q47. The variance of data : 3,4,5,8 is

(a) 4.5 **(b) 3.5** (c) 5.5 (d) 6.5

Q48. A lady travel at a speed of 20 km/h and returned at quicker speed. If her average speed of the whole journey is 24 km/h, find the speed of return journey (in km/h)

(a) 25 **(b) 30** (c) 35 (d) 38

Q49. Mean of variable 'x' be 50, then mean of $u = 10 + 5x$=?

(a) 250 **(b) 260** (c) 265 (d) 273

Q50. 4,9,11,14,37. MD about the Median is

(a) 11 (b) 8.5 **(c) 7.6** (d) 7.45

June 2011

Q51. If the difference between mean and Mode is 63, then the difference between Mean and Median will be __

(a) 63 (b) 31.5 **(c) 21** (d) None

Q52. If the AM between two numbers is 64 & GM between them is 16. HM between them is__

(a) 64 **(b) 4** (c) 16 (d) 40

Q53. If all observations in a distribution are increased by 6, then the variance of the series will be __.

(a) Increased (b) Decreased **(c) Unchanged** (d) None

Q54. The average of 5 quantities is 6 and the average of 3 is 8. what is the average of the remaining two.

(a) 4 (b) 5 **(c) 3** (d) 3.5

Q55. The standard deviation of the weights (in kg) of the students of a class of 50 students was calculated to be 4.5 kg. Later on it was found that due to some fault in weighing machine, the weight of each student was under measured by 0.5 kg. Correct SD of the weight will be:

(a) Less than 4.5 (b) Greater than 4.5

(c) Equal to 4.5 (d) Can't be determined

Q56. For Normal distribution relation between QD & SD is

(a) QD > SD **(b) QD < SD** (c) QD = SD (d) None

Q57. Median of following numbers, which are given is ascending order is 25. Find the Value of X.

$11 \quad 13 \quad 15 \quad 19 \quad (x+2) \quad (x+4) \quad 30 \quad 35 \quad 39 \quad 46$

(a) 22 (b) 20 (c) 15 (d) 30

Q58. Average age of a group of 10 students was 20 years. Average age increased by 2 years when 2 new students joined the group. Find average age of two new students.

(a) 22 years (b) 30 years (c) 44 years **(d) 32 years**

June 2012

Q59. If SD of first 'n' natural numbers is 2 'n' is

(a) 10 **(b) 7** (c) 6 (d) 5

Q60. GM of 3 observations 40,50 & X is 10. Value of X is

(a) 2 (b) 4 **(c) 1/2** (d) None

Q61. The mean of first three term is 14 and mean of next two terms is 18. The mean of all five term is:

(a) 14.5 (b) 15 (c) 14 **(d) 15.6**

Q62. The standard deviation is independent of change of

(a) Scale **(b) Origin**

(c) Both origin & scale (d) None

Q63. In a normal distribution, the relationship between the three most commonly used measures of dispersion

(a) SD > MD > QD (b) MD > SD > QD

(c) SD > QD > MD (d) QD > MD > SD

Q64. If SD of x is σ, then SD of $\frac{ax+b}{c}$, where a, b & $c(c \pm 0)$ are arbitrary constants, will be

(a) σ (b) $\frac{a\sigma+b}{c}$ (c) $\frac{a}{c} \cdot \sigma$ **(d)** $\left|\frac{a}{c}\right| \sigma$

Q65. The mean salary of a group of 50 persons is ₹ 5,850. Later on it is discovered that the salary of one employee has been wrongly taken as ₹ 8,000 instead of ₹ 7,800. The corrected mean salary is

(a) ₹ 5,854 **(b) ₹ 5,846** (c) ₹ 5,650 (d) None

Q66. Which of the following measures of dispersion is used for calculating the consistency between two series?

(a) Quartile deviation (b) Standard deviation

(c) Coefficient of variation (d) None

Q67. If mode of a data is 18 & mean is 24, then median=

(a) 18 (b) 24 **(c) 22** (d) 21

Q68. The point of intersection of the "less than" & "more than" ogives correspond to
(a) Mean (b) Mode **(c) Median** (d) None

Q69. A man travels from Agra to Gwalior at an average speed of 30 km per hour and back at an average speed of 60 km per hour. What is his average speed?
(a) 38 km per hour **(b) 40 km per hour**
(c) 45 km per hour (d) 35 km per hour

June 2013

Q70. If sum of squares of the values = 3390, N = 30 & SD = 7, find out the mean.
(a) 113 (b) 210 **(c) 8** (d) None

Q71. If mean of a frequency distribution is 100 & coefficient of variation is 45% then SD is:
(a) 45 (b) 0.45 (c) 4.5 (d) 450

Q72. Which of the following measures of central tendency cannot be calculated by graphical method?
(a) Mean (b) Mode (c) Median (d) Quartile

Q73. Geometric mean of 8, 4, 2 is
(a) 4 (b) 2 (c) 8 (d) None

Q74. Average age of 15 students of a class is 15 years. Out of them, average age of 5 students is 14 years & that of the other 9 students is 16 years. Age of the 15^{th} student is:
(a) 11 years (b) 14 years (c) 15 years (d) None

Dec 2013

Q75. Find out variance given that the AM = $(8 + 4)/2$
(a) 2 (b) 6 (c) 1 **(d) 4**

Q76. In normal distribution mean, median and mode are
(a) Equal (b) Not Equal (c) Zero (d) None

Q77. Coefficient of MD about mean for first 9 natural no. is
(a) 200/9 (b) 80 **(c) 400/9** (d) 50

Q78. Pair of averages whose value can be determined graphically?
(a) Mode, Median (b) Mean, Mode
(c) Mean, Median (d) None of the above

Q79. If mean = 5, SD = 2.6, median = 5 & QD = 1.5, then the coefficient of QD equals
(a) 35 (b) 39 **(c) 30** (d) 32

June 2014

Q80. What will be probable value of MD? When $Q_3 = 40$ & $Q_1 = 15$
(a) 17.50 (b) 18.75 **(c) 15.00** (d) None

Q81. Which of the following statements is true?
(a) Median is based on all the observations
(b) The mode is the mid value
(c) The median is the second quartile
(d) The mode is the fifth decile.

Q82. Mean of the following data is 6. Find 'P'.

X :	2	4	6	10	P+5
F :	3	2	3	1	2

(a) 4 (b) 6 (c) 8 **(d) 7**

Q83. Formula for range of middle 50% items of a series
(a) $Q_3 - Q_1$ (b) $Q_3 - Q_2$ (c) $Q_2 - Q_1$ **(d)** $\frac{Q_3 - Q_1}{2}$

Dec 2014

Q84. 3^{rd} decile for numbers 15, 10, 20, 25, 18, 11, 9, 12, is:
(a) 13 **(b) 10.70** (c) 11 (d) 11.50

Q85. A random variable X has uniform distribution on the interval (-3, 7). The mean of the distribution is:
(a) 2 (b) 4 (c) 5 (d) 6

Q86. If the first quartile is 142 and semi-inter quartile range is 18, then the value of median is:
(a) 151 **(b) 160** (c) 178 (d) None

Q87. The quartile deviation is:
(a) 2/3 of SD (b) 4/5 of SD (c) 5/6 of SD (d) None

Q88. If the AM of two numbers is 10 & GM of these numbers is 8, then the harmonic mean is:
(a) 9 (b) 8.9 **(c) 6.4** (d) None

June 2015

Q89. SD of a variable x is known to be 10. SD of 50 + 5x
(a) 50 (b) 100 (c) 10 (d) 500

Q90. The harmonic mean H of two numbers is 4 and their arithmetic mean A and the geometric mean G satisfy the equation $2A + G^2 = 27$, then the numbers are
(a) (1, 3) (b) (9, 5) **(c) (6, 3)** (d) (12, 7)

Q91. Coefficient of quartile deviation is equal to
(a) Quartile deviation × 100/median
(b) Quartile deviation × 100/mean
(c) Quartile deviation × 100/mode
(d) None

Q92. If all the observations are increased by 5, then
(a) SD would be increased by 5
(b) MD would be increased by 5
(c) QD would be increased by 5
(d) All the three would not be increased by 5

Dec 2015

Q93. What is value of MD about mean from the number 5,8,6, 3 & 4?
(a) 5.20 (b) 7.20 **(c) 1.44** (d) 2.23

Q94. For observation of 6, 4, 1, 6, 5, 10, 4, 8 the range is
(a) 10 **(b) 9** (c) 8 (d) None

Q95. If a variance of a random variable 'x' is 23, then what is variance of $2x + 10$?
(a) 56 (b) 33 (c) 46 **(d) 92**

Q96. If variance $= 148.6$ and $\bar{x} = 40$, then the coefficient of variation is:
(a) 37.15 **(b) 30.48** (c) 33.75 (d) None

Q97. Quartiles can be determined graphically using:
(a) Histogram (b) Frequency polygon
(c) Ogive curve (d) Pie chart

Q98. In a class of 50 students, 10 have failed and their average marks is 2.5. The total marks secured by the entire class were 281. Average marks who have passed is:
(a) 5.32 (b) 7.25 **(c) 6.40** (d) None

June 2016

Q99. The SD of first n natural number is __
(a) $\sqrt{\frac{n^2-1}{12}}$ (b) $\sqrt{\frac{n(n+1)}{12}}$ (c) $\sqrt{\frac{n(n-1)}{6}}$ (d) None

Q100. If mean & coefficient of variation of the marks of 10 students is 20 & 80 respectively. What will be variance of them?
(a) 256 (b) 16 (c) 25 (d) None

Q101. If same amount is added to or subtracted from all the values of an individual series then the standard deviation and variance both shall be __
(a) changed **(b) unchanged** (c) same (d) none

Q102. If the mean of two numbers is 30 and geometric mean is 24 then what will be these two numbers?
(a) 36 & 24 (b) 30 & 30 **(c) 48 & 12** (d) None

Dec 2016

Q103. For moderately skewed distribution of marks in commerce for a group of 200 students the mean marks and mode marks were found to be 55.60 and 46. What is the median marks?
(a) 55.5 (b) 60.5 **(c) 52.4** (d) None

Q104. Mean for the data 6, 4, 1, 6, 5, 10, 3 is 5 when each observation added by 2, what is mean of the data
(a) 5 (b) 6 **(c) 7** (d) 10

Q105. The average of 10 observations is 14.4. If the average of first 4 observations is 16.5. The average of remaining 6 observations is:
(a) 13.6 **(b) 13.0** (c) 13.2 (d) 12.5

Q106. The ordering of a particular design of a cloth show room, a size be more appropriate. ___
(a) median (b) mean **(c) mode** (d) all

Q107. The second and third moments of a sample of seven observation (-6, -4, -2, 0, 2, 4, 6) are
(a) (12, 0) (b) (0, 12) (c) (0, 16) **(d) (16, 0)**

Q108. The geometric mean of three numbers 40, 50 and x is 10, the value of x is
(a) 5 (b) 4 (c) 2 **(d)** $\frac{1}{2}$

June 2017

Q109. The rates of returns from three different shares are 100%, 200% and 400% respectively. The average rate of return will be:
(a) 350% (b) 233.33% **(c) 200%** (d) 300%

Q110. If GM is 6 & AM is 6.5, then HM will be:
(a) $\frac{6^2}{6.5}$ (b) $\frac{6}{6.5^2}$ (c) $\frac{6}{6.5}$ (d) None

Q111. A company's past 10 years average earning is ₹ 40 crores. To have the same average earning for 11 years including these 10 years, how much earning must be made by the company in the eleventh year?
(a) ₹ 40 crores (b) ₹ $\frac{40\times10}{11}$ crores
(c) More than ₹ 40 crores (d) None

Q112. A person purchases 5 rupees worth of eggs from 10 different markets. You are to find the average number of eggs per rupee purchased from all the markets taken together. The suitable average in this case is:
(a) A.M. (b) G.M. **(c) H.M.** (d) None

Q113. For a moderately skewed distribution, the relationship between mean, median and mode is:
(a) Mean - Mode = 2 (Mean - Median)
(b) Mean - Median = 3(Mean - Mode)
(c) Mean - Median = 2 (Mean - Mode)
(d) Mean - Mode = 3 (Mean - Median).

Q114. If AM & coefficient of variation of x are 10 and 40, respectively then the variance of $-15 + \frac{3x}{2}$ will be:
(a) 64 (b) 81 (c) 49 **(d) 36**

Q115. ___ is reciprocal of AM of reciprocal of observations.
(a) HM (b) GM
(c) Both (a) & (b) (d) None

Q116. MD is the least when deviations are taken from
(a) Mean (b) Median (c) Mode (d) HM

Q117. If mean value of seven numbers $7,9,12,X,4,11$ and 5 is 9, then the missing number X will be:
(a) 13 (b) 14 **(c) 15** (d) 8

Q118. When all observations occur with equal frequency ____ does not exist.
(a) median **(b) mode** (c) mean (d) none

May 2018

Q119. If the variables x & z are so related that $z = ax + b$ for $x = x_1$, where a & b are constant, then $\bar{z} = a\bar{x} + b$
(a) True (b) false (c) both (d) none

Q120. Relation between mean, median and mode is
(a) mean-mode = 2 (mean-median)
(b) mean-median = 3 (mean-mode)
(c) mean-median = 2 (mean-mode)
(d) mean-mode = 3 (mean-median)

Q121. $\frac{(Q_3-Q_1)}{(Q_3+Q_1)}$ is known as
(a) Coefficient of Range **(b) Coefficient of Q.D.**
(c) Coefficient of S.D. (d) Coefficient of M.D.

Q122. If each item is reduced by 15 A. M is__
(a) reduced by 15 (b) increased by 15
(c) reduced by 10 (d) none

Q123. For 899, 999, 391, 384, 390, 480, 485, 760, 111, 240 Rank of median is
(a) 2.75 **(b) 5.5** (c) 8.25 (d) none

Q124. The average of a series of overlapping averages, each of which is based on a certain number of item within a series is know as.
(a) Moving average (b) Weighted average
(c) Simple average (d) None

Q125. If the S.D. of the 1^{st} n natural Nos. is $\sqrt{30}$, Then the value of n is
(a) 19 (b) 20 (c) 21 (d) None

Nov 2018

Q126. The median of the data 5, 6, 7, 7, 8, 9, 10, 11, 11, 12, 15, 18, 18 & 19 is
(a) 10.5 (b) 10 (c) 11 (d) 11.5

Q127. The mean of 20 items of a data is 5 and if each item is multiplied by 3, then the new mean will be
(a) 5 (b) 10 **(c) 15** (d) 20

Q128. The Geometric mean of 3,6,24 and 48 is
(a) 8 **(b) 12** (c) 24 (d) 6

Q129. The Algebraic sum of the deviation of a set of values from their arithmetic mean is
(a) > 0 **(b) $= 0$** (c) < 0 (d) None

Q130. Which one of the following is not a central tendency?
(a) MD (b) AM (c) Median (d) Mode

Q131. If the range of a set of values is 65 and maximum value in the set is 83, then the minimum value in the set is
(a) 74 (b) 9 **(c) 18** (d) None

Q132. If total frequencies of three series are 50, 60 and 90 and their means are 12,15 and 20 respectively, then the mean of their composite series is
(a) 16 (b) 15.5 **(c) 16.5** (d) 14.5

Q133. If the variance of 5,7,9 and 11 is 4, then the coefficient of variation is:
(a) 15 **(b) 25** (c) 17 (d) 19

Q134. Standard Deviation for the marks obtained by a student in monthly test in mathematic (out of 50) as 30,35,25,20,15 is
(a) 25 **(b) $\sqrt{50}$** (c) $\sqrt{30}$ (d) 50

Q135. If in a moderately skewed distribution, the values of mode and mean are 32.1 and 35.4 respectively, then the value of the median is
(a) 34.3 (b) 33.3 (c) 34 (d) 33

Q136. If the standard deviation for the marks obtained by a student in monthly test is 36, then the variance is
(a) 6 (b) 36 (c) 1296 (d) None

Q137. If the mean of the following distribution is 6 then the value of P is

X:	2	4	6	10	P + 5
f:	3	2	3	1	2

(a) 7 (b) 5 (c) 8 (d) 11

June 2019

Q138. If $\sigma^2 = 100$ & coefficient of variation = 20% then $\bar{x}$ =
(a) 60 (b) 70 (c) 80 **(d) 50**

Q139. The AM of 15 Observation is 9 and the AM of first 9 Observation is 11 & then AM of remaining Observations is
(a) 11 **(b) 6** (c) 5 (d) 9

Q140. In a moderately Skewed distribution, the values of mean & median are 12&8 respectively. Mode is
(a) 0 (b) 12 (c) 15 (d) 30

Q141. SD is _____ times of $\sqrt{MD \times QD}$
(a) 2/3 (b) 4/5 **(c)** $\sqrt{\frac{15}{8}}$ (d) $\sqrt{\frac{8}{15}}$

Q142. The Q.D of 6 numbers 15,8,36,40,38,41 is equal to
(a) 12.5 (b) 25 **(c) 13.5** (d) 37

Q143. Which of the following is positional average?
(a) Median (b) GM (c) HM (d) AM

Q144. S.D of first five consecutive natural numbers is
(a) $\sqrt{10}$ (b) $\sqrt{8}$ (c) $\sqrt{3}$ **(d)** $\sqrt{2}$

Q145. If profits of a company remain same for the last 10 months then the S.D. of profits of the company would be:
(a) Positive (b) Negative **(c) Zero** (d) (a) or (c)

Q146. For a symmetric distribution
(a) Mean = Median = Mode
(b) Mode = 3 Median -2 Mean
(c) Mode = $\frac{1}{3}$ Median = $\frac{1}{2}$ Mean
(d) None

Q147. For the distribution

X	1	2	3	4	5	6
F	6	9	10	14	12	8

The value of median is
(a) 3.5 (b) 3 **(c) 4** (d) 5

Q148. Coefficient of QD is 1/4 then Q_3/Q_1 is
(a) 5/3 (b) 4/3 (c) 3/4 (d) 3/5

Q149. Sum of mean & SD of a series is a + b, if we add 2 to each observation of series then the sum of mean and SD is
(a) a + b + 2 (b) 6 − a + b (c) 4 + a − b (d) None

Nov 2019

Q150. The approximate ratio of SD, MD, QD is
(a) 3 : 4 : 5 (b) 2 : 3 : 4 **(c) 15 : 12 : 10** (d) None

Q151. The deviations are minimum when taken from:
(a) Mean **(b) Median** (c) Mode (d) None

Q152. If the AM & GM of two numbers are 30 and 24 respectively. Find the no.'s
(a) 12 & 24 **(b) 48 & 12** (c) 30 & 30 (d) 40 & 20

Q153. Origin is shifted by 5, what will happen
(a) SD will increase by 5 (b) QD will increase by 5
(c) MD will increase by 5 **(d) No change in SD**

Q154. Coefficient of variation is equal to:
(a) $\frac{SD}{Mean}$ **(b)** $\frac{SD}{Mean} \times 100$ (c) $\frac{Mean}{SD} \times 100$ (d) $\frac{Mean}{SD}$

Q155. Find the mode of the following data:

Class Interval	3 − 6	6 − 9	9 − 12	12 − 15	15 − 18	18 − 21
Frequency	2	5	10	23	21	12

(a) 25 (b) 4.6 **(c) 14.6** (d) 13.5

Q156. Find SD of the following 1,2,3,4,5,6,7,8,9.
(a) 2.58 (b) 60/9 (c) 60/3 (d) 3.20

Q157. Mean= 200 & variance= 80. Coefficient of variation.
(a) 2.56 **(b) 4.47** (c) 32 (d) 0.32

Q158. Which of the following is affected by shifting of scale.
(a) SD (b) MD (c) QD **(d) None**

Q159. Histogram is used to represent
(a) Mode (b) Median (c) Percentile (d) Quartile

Q160. Coefficient of variation = 80. Mean = 20. Variance=?
(a) 640 **(b) 256** (c) 16 (d) 250

Q161. Find the median of the following.

CI	$0-10$	$10-20$	$20-30$	$30-40$	$40-50$
f	2	3	4	5	6

(a) 35 **(b) 32** (c) 36 (d) 37.5

Q162. Difference between upper limit and lower limit of a class is known as.

(a) Range (b) Class mark
(c) Class size (d) Class boundary

Q163. Find the mode of the following:

$0-10$	$10-20$	$20-30$	$30-40$	$40-50$	$50-60$
7	14	22	34	20	19

(a) 32 **(b) 34.61** (c) 25.42 (d) 35

Q164. Find the median of the following:

CI	$0-10$	$10-20$	$20-30$	$30-40$	$40-50$
f	5	15	28	10	2

(a) 10.57 **(b) 23.57** (c) 25 (d) None

Q165. $\sum_{i=1}^{n}(\bar{x}-x_i)$ is equal to

(a) $\bar{x}\sum_{i=1}^{n}x_i$ (b) $n(\bar{x}\sum_{i=1}^{n}x_i)$ (c) $\bar{x}-n\bar{x}$ **(d) zero**

Q166. SD from numbers 1,4,5,7,8 is 2.45. If 10 is added to each then SD will be:

(a) 12.45 (b) 24.5 **(c) No Change** (d) 10

Nov 2020

Q167. Given the weights for the numbers $1,2,3\ldots..n$ are respectively $1^2, 2^2\ 3^2\ldots..n^2$ then weighted HM is___

(a) $\frac{2n+1}{4}$ (b) $\frac{2n+1}{6}$ **(c)** $\frac{2n+1}{3}$ (d) $\frac{2n+1}{2}$

Q168. Which measure is suitable for open-end classification?

(a) Median (b) Mean (c) Mode (d) GM

Q169. 50^{th} Percentile is equal to

(a) Median (b) Mode (c) Mean (d) None

Q170. The harmonic mean A and B is 1/3 and harmonic mean of C and D is 1/5. The harmonic mean of ABCD is

(a) 8/15 **(b) 1/4** (c) 1/15 (d) 5/3

Q171. Which is least affected by extreme values?

(a) Mean **(b) Median** (c) Mode (d) None

Q172. A fire engine rushes to a place of fire accident with a speed of 110 kmph and after the completion of operation returned to base at a speed of 35kmph. Average speed per hour in per-direction is obtained as _____ of speeds.

(a) Average **(b) HM** (c) GM (d) Half of HM

Q173. Ten matches data is given. Then which of the following cannot be found?

(a) least score (b) Highest score
(c) Best score **(d) Median score**

Q174. If the AM and HM of two numbers are 6 and 9 respectively, then GM is

(a) 7.35 (b) 8: 5 (c) 6.75 (d) None

Q175. Which of the following measure of dispersion is based on absolute deviations?

(a) Range (b) SD (c) MD (d) QD

Jan 2021

Q176. From the record on sizes of shoes sold in a shop, one can compute the following to determine the most preferred shoe size.

(a) Mean (b) Median **(c) Mode** (d) Range

Q177. Which of the following measure does not possess mathematical properties?

(a) AM (b) GM (c) HM **(d) Median**

Q178. If $y = 3 + (4.5)x$ and the mode for x-value is 20, then the mode for y value is

(a) 3.225 (b) 12 (c) 24.5 **(d) 93**

Q179. If there are two groups with n_1 and n_2 observations and H_1 and H_2 are respective harmonic means, then the harmonic mean of combined observation is

(a) $\frac{n_1H_1+n_2H_2}{n_1+n_2}$ (b) $\frac{n_1H_1+n_2H_2}{H_1+H_2}$
(c) $\frac{n_1+n_2}{n_1H_1+n_2H_2}$ **(d)** $\frac{(n_1+n_2)H_1+H_2}{n_1H_2+n_2H_1}$

Q180. The best statistical measure used for comparing two series is

(a) Mean absolute deviation (b) Range
(c) Coefficient of variation (d) Standard deviation

Q181. The relationship between P-series and Q series is given by $2P-3Q$ -10. If the range of P-Series is 18. What would be the range of Q?

(a) -10 (b) 15 (c) 9 **(d) 12**

Q182. It is given that the mean $(\bar{X})$ is 10 and standard deviation (s.d.) is 3.2. If the observations are increased by 4, then the new mean and SD are:

(a) $\bar{X}=10$, s.d. $=7.2$ (b) $\bar{X}=10$, s.d. $=3.2$
(c) $\bar{X}=14$, s.d. $=3.2$ (d) $\bar{X}=14$, s.d. $=7.2$

Q183. Which is a relative measure of dispersion?

(a) Range (b) Mean deviation
(c) Standard deviation **(d) Coefficient of QD**

Q184. Find the coefficient of mean deviation about mean for the data: 5, 7, 8,10,11,13,19
(a) 17.28 (b) 28.57 **(c) 32.11** (d) 18.56

July 2021

Q185. There are n numbers. When 50 is subtracted from each of these number the sum of the numbers so obtained is -10. When 46 is subtracted from each of the original n numbers, then the sum of numbers. So obtained is 70. What is the mean of the original n numbers?
(a) 56.8 (b) 25.7 **(c) 49.5** (d) 53.8

Q186. If a school has 14 teachers, their heights (in cm) are:172, 173, 164, 178, 168, 169, 173, 172, 173, 164, 178, 168, 169, 173then average deviation of this data is:
(a) 2.43 approx. (b) 3.93 approx.
(c) 3.43 approx. (d) 2.92 approx.

Q187. The mean of 'n' observation is 'x'. If k is added to each observation, then the new mean is.
(a) k (b) xk (c) x-k **(d) x+k**

Q188. If $y = 3 + 1.9x$, & mode of x is 15, then mode of y is:
(a) 15.9 (b) 27.8 (c) 35.7 **(d) 31.5**

Q189. SD of 1 to 9 natural number is:
(a) 6.65 **(b) 2.58** (c) 6.75 (d) 5.62

Q190. Probable value of MD when $Q_3 = 40$ & $Q_1 = 15$ is:
(a) 15 (b) 18.75 (c) 17.50 (d) 0

Q191. Numbers are 5,1,8,7,2 then coefficient of variation is:
(a) 56.13% **(b) 59.13%** (c) 48.13% (d) 44.13%

Q192. If every observation is increased by 7 then:
(a) Standard deviation increased by 7
(b) Mean deviation increased by 7.
(c) Not affected at all.
(d) Quartile deviation increased by 7.

Q193. If the relationship between x & y is given by $2x + 3y = 10$ & range of y is 10, then what is range of x?
(a) 10 (b) 18 (c) 8 **(d) 15**

Q194. Expenditures of a company (in million rupees) per item in various years)

Year	Item of expenditures				
	Salary	Fuel & Transport	Bonus	Interest on Loans	Taxes
1998	288	98	3.00	23.4	83
1999	342	112	2.52	32.5	108
2000	324	108	3.84	41.6	74
2001	336	133	3.68	36.4	88
2002	420	142	3.96	49.4	98

What is the average amount of interest per year which the company had to pay during this period?
(a) 33.66 **(b) 36.66** (c) 31.66 (d) 39.66

Q195. The MD of the numbers 3,10,6,11,14,17,9,8,12 about the mean is (correct to one decimal place):
(a) 8.7 (b) 4.2 **(c) 3.1** (d) 9.8

Dec 2021

Q196. If there are 3 observations 15, 20, 25 then the sum of deviation of the observations from their AM is
(a) 0 (b) 5 (c) -5 (d) 10

Q197. If the AM & GM for 10 observations are both 15, then the value of HM is
(a) less than 15 (b) more than 15
(c) 15 (d) cannot be determined

Q198. If average mark for a group of 30 girls is 80, a group of boys is 70 and combined average is 76, then how many are in the boy's group?
(a) 21 **(b) 20** (c) 22 (d) 19

Q199. If two variables a & b are related by $c = ab$ then G.M. of c is equal to
(a) G.M. of a + G.M. of b **(b) G.M. of a × G.M. of b**
(c) G.M. of a - G.M. of b (d) G.M. of a / G.M. of b

Q200. For a moderately skewed distribution, the median is twice the mean, then mode is ___ times the median.
(a) 3 **(b) 2** (c) 2/3 (d) 3/2

Q201. Median value of 48, 36, 72, 87, 19, 66, 56, 91 is
(a) 53 (b) 87 **(c) 61** (d) 19

Q202. The marks secured by 5 students in a subject are 82,73,69,84,66. What is the coefficient of Range
(a) 0.12 **(b) 12** (c) 120 (d) 0.012

Q203. For a data having odd number of values, the difference between the first and the middle value is equal to the difference between the last and the middle value; similarly, difference between the second and middle values is equal to that of second last and middle value so on. Therefore, the middle value is equal to
(a) Half of the range (b) Half of SD
(c) Mode **(d) Mean**

Q204. 100 participants expressed their opinion on recommending a new product to their friends using attributes: most unlikely, not sure, likely, most likely. Appropriate measure of central tendency that can be used
(a) Mean **(b) Mode** (c) GM (d) HM

Q205. Along a road there are 5 buildings of apartments, marked as 1, 2, 3, 4, 5. Number of people residing in each building is available. A bus stop is to be setup near one of the buildings so that the total distance walked by the residents to the bus stop from their buildings must be kept minimum. One must consider involving___to find the position of the bus stop.
(a) Mean **(b) Median** (c) Mode (d) None

Q206. Given that Mean = 70.20 & Mode = 70.50, Median is expected to be
(a) 70.15 (b) 70.20 **(c) 70.30** (d) 70.35

June 2022

Q207. Which is not a measure of central tendency
(a) Mean (b) Median **(c) QD** (d) Mode

Q208. MD of data 3, 10, 10, 4, 7, 18, 5 from mode is
(a) 4.39 (b) 4.70 **(c) 4.14** (d) 5.24

Q209. A M and Coefficient of variation of x is 10 and 40. What is the variance 30 − 2x
(a) 64 (b) 56 (c) 49 (d) 81

Q210. Which is based on absolute deviation?
(a) Standard deviation **(b) Mean deviation**
(c) Range (d) Quartile deviation

Q211. When each value does not have equal importance then
(a) AM (b) GM
(c) HM **(d) Weighted Average**

Q213. Following are wages of 8 workers 82, 96, 52, 75, 70, 65, 50, 70 Find range & coefficient of range?
(a) 46,32.70 (b) 43,31.50
(c) 46, 31.50 (d) 43,32.70

Q214. The mean of 20 observation is 38. If two observations are taken as 84 & 36 instead of 48 and 63 find new means.
(a) 38.45 (b) 41.15 **(c) 37.55** (d) 40.05

Q215. 3rd decile for 15,10,20,25,18,11,9,12 is
(a) 13 **(b) 10.70** (c) 11.00 (d) 11.50

Q216. Find SD & coefficient of variation for. 1,9,8,5,7
(a) 2.828,49.32 (b) 2.828,48.13
(c) 2.828, 47.13 (d) 2.828,50.13

Dec 2022

Q217. If mean $(\bar{X})$ is = 10 and mode (Z) is = 7, then find out the value of median (M)?
(a) 9 (b) 17 (c) 3 (d) 4.33

Q218. If the coefficient of variation & SD are 30 & 12 respectively, then the AM of the distribution is:
(a) 40 (b) 36 (c) 25 (d) 19

Q219. __ is based on all the observations & ___ is based on the central fifty percent of the observations.
(a) Mean deviation, Range
(b) Mean deviation, quartile deviation
(c) Range, standard deviation
(d) Quartile deviation, standard deviation

Q220. Relationship between two variables x and y is given by 4x − 10y = 20. If the median value of the variable x is 10 then what is median value of variable y ?
(a) 1.0 **(b) 2.0** (c) 3.0 (d) 4.0

Q221. Which one of the following is not a method of measures of dispersion?
(a) Standard deviation (b) Mean deviation
(c) Range **(d) Concurrent deviation method**

Q222. MD is minimum when deviations are taken from:
(a) Mean **(b) Median** (c) Mode (d) Range

Q223. If the first quartile in 56.50 and the third quartile is 77.50, then the co-efficient of quartile deviation is:
(a) 638.09 **(b) 15.67** (c) 63.80 (d) 156.71

Q224. Median of 42,72,35,92,67,85,72,81,51,56 is:
(a) 69.5 (b) 72 (c) 64 (d) 61.5

Q225. If the sum of square of the values equals to 3390, Number of observations are 30 and Standard deviation is 7, what is the mean value of the above observations?
(a) 14 (b) 11 **(c) 8** (d) 5

Q226. The mean of 50 observations is 36. If two observations 30 and 42 are to be excluded, then the mean of the remaining observations will be:
(a) 36 (b) 38 (c) 48 (d) 50

Q227. If AM & GM between two numbers are 5 & 4 respectively, then these numbers are:
(a) 2 & 3 **(b) 2 & 8** (c) 4 & 6 (d) 1 & 16

Q228. If the variance of random variable 'x' is 17, then what is variance of y = 2x + 5 ?
(a) 34 (b) 39 **(c) 68** (d) 78

Q229. If the variance of given data is 12, and their mean value is 40, what is coefficient of variation (CV)?
(a) 5.66% (b) 6.66% (c) 7.50% **(d) 8.65%**

Q230. In a given set if all data are of same value, then variance would be:
(a) 0 (b) 1 (c) -1 (d) 0.5

Q231. If AM between two numbers is 5 & GM is 4 then what is the value of HM?
(a) 3.2 (b) 3.4 (c) 3.5 (d) 3.6

Q232. The average age of 15 students in a class is 9 years. Out of them, the average age of 5 students is 13 years and that 8 students is 5 years. What is the average of remaining 2 students?
(a) 5 years (b) 9 years (c) 10 years (d) 15 years

June 2023

Q233. If x and y are related as $4x + 3y + 11 = 0$ and mean deviation of y is 7.2 then mean deviation of x is?
(a) 2.70 (b) 7.20 (c) 4.50 **(d) 5.40**

Q234. A Professor has given assignment to students in a statistics class. A student computer AM & SD for 100 students as 50 & 5 respectively. Later on She points out the student that he has made mistake in taking one observation as 100 instead of 50. What would be the consent mean if the wrong observation is correct?
(a) 50.5 (b) 49.9 **(c) 49.5** (d) 50.1

Q235. Find the mean of the following data

Class interval	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80
Frequency	9	13	6	4	6	2	3

(a) 23.7 **(b) 35.7** (c) 39.7 (d) 43.7

Q236. For a moderately skewed distribution of master is statistics is for a group of 200 students, the mean and median marks were found to be 55.60 & 52.40 respectively: What are the modal makes?
(a) 54.43 (b) 48 (c) 53.56 **(d) 46**

Q237. The geometric mean of 3,7,11,15,24,28,30,0 is:
(a) 6 **(b) 0** (c) 9 (d) 12

Q238. If the first quartile is 42.75 and the third quartile is 74.25 then the co-efficient of QD is
(a) 29.62 (b) 15.75 (c) 17.57 **(d) 0.2692**

Q239. Find MD about mean for the data
12, 16, 21, 30, 35, 39, 40
(a) 9.14 **(b) 9.63** (c) 8.91 (d) 9.81

Q240. The median of the following set of observation 24,18,36,42,30,28,21,20,25,33,18
(a) 26.5 (b) 27.5 (c) 28.5 (d) 29.5

Q241. Find the mode of the following data

X	25 – 30	30 – 35	35 – 40	40 – 45	45 – 50	50 – 55
F(x)	20	53	51	51	41	53

(a) 31.75 (b) 30.75 **(c) 33.75** (d) 35.75

Q242. If the SD of data 2,4,5,6,8,17 is 4.47, then SD of the data 4,8,10,12,16,34 is___
(a) 4.47 **(b) 8.94** (c) 13.41 (d) 2.24

Q243. The mean & variance of a group of 100 observations are 8 & 9 respectively of 100 observations, mean & SD of 60 observation 10 & 2 respectively. Find SD of remaining 40
(a) 4.5 (b) 3.5 (c) 2.5 **(d) 1.5**

Q244. For the given data set: 5,10,3,6,4,8,9,3,15,2,9,4,19,11,4, what is the median
(a) 8 **(b) 6** (c) 4 (d) 9

Q245. If mean of two numbers is 30 & GM is 24, then what will be HM of two numbers?
(a) 19.2 (b) 21.8 (c) 22.3 (d) 18.4

Q246. For the given set of normally distributed data, the following statistical data are known: Mean = 6; Standard Deviation = 2.6; Median = 5 and Q deviation = 1.5, then the coefficient of quartile deviation equals to
(a) 30 (b) 32 (c) 25 (d) 39

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Probability

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Nov 2006

Q1. There are six slips in a box & numbers 1,1,2, 2, 3, 3 are written on these slips. Two slips are taken at random from the box. The expected values of the sum of numbers on the two slips is:

(a) 5 (b) 3 **(c) 4** (d) 7

Q2. A letter is taken out at random from the word RANGE & another is taken out from the word PAGE. The probability that they are the same letters is:

(a) 1/20 **(b) 3/20** (c) 3/5 (d) 3/4

Q3. An urn contains 9 balls two of which are red, three blue & four black. Three balls are drawn at random. The probability that they are of same colour is:

(a) $\frac{3}{27}$ (b) $\frac{20}{31}$ **(c) $\frac{5}{84}$** (d) None

Q4. A card is drawn from a well shuffled pack of 52 cards. Let E, "a king or a queen is drawn" & E_2: "a queen or a jack is drawn", then:

(a) E_1 & E_2 are not independent

(b) E_1 & E_2 are mutually exclusive

(c) E_1 & E_2 are independent

(d) None of these

Feb 2007

Q5. In a non - leap year, the probability of getting 53 Sundays or 53 Tuesdays or 53 Thursdays is:

(a) $\frac{4}{7}$ (b) $\frac{2}{7}$ **(c) $\frac{3}{7}$** (d) $\frac{1}{7}$

Q6. If A & B are two events & $P(A) = \frac{3}{8}$, $P(B) = \frac{1}{2}$, $P(A \cap B) = \frac{1}{4}$, then value of $P(A' \cup B')$ is:

(a) $\frac{1}{4}$ **(b) $\frac{3}{4}$** (c) $\frac{5}{8}$ (d) $\frac{5}{4}$

Q7. The probability that there is at least one error in an account statement prepared by A is 0.3 & for B & C, they are 0.4 & 0.45 respectively. A, B & C prepared 20, 10 & 40 statements respectively. The expected number of correct statements in all is:

(a) 32 (b) 45 **(c) 42** (d) 25

May 2007

Q8. From a pack of cards, two are drawn, the first being replaced before the second is drawn. The chance that the first is a diamond & the second is king is:

(a) $\frac{1}{52}$ (b) $\frac{3}{2704}$ (c) $\frac{4}{13}$ (d) $\frac{3}{52}$

Q9. The theory of compound probability states that for any two events A & B:

(a) $P(A \cap B) = P(A) \times P(B)$ **(b) $P(A \cap B) = P(A) \times P(B/A)$**

(c) $P(A \cup B) = P(A) \times P(B/A)$

(d) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

Q10. The probability of getting qualified in IIT- JEE & AIEEE by a student are respectively $\frac{1}{5}$ & $\frac{3}{5}$. The probability that the student gets qualified for one of these tests is:

(a) $\frac{17}{25}$ (b) $\frac{22}{25}$ (c) $\frac{8}{25}$ (d) $\frac{3}{25}$

Q11. Amitabh plays a game of tossing a dice. If number less than 3 appears, he is getting Rs. a, otherwise he has to pay Rs. 10. If the game is fair, find a:

(a) 25 **(b) 20** (c) 22 (d) 18

Aug 2007

Q12. Suppose E & F are 2 events of a random experiment. If the probability of occurrence of E is 1/5 & the probability of occurrence of F given E is 1/10, then the probability of non-occurrence of at least one of the events E & F is:

(a) $\frac{1}{50}$ (b) $\frac{1}{25}$ (c) $\frac{13}{50}$ **(d) $\frac{49}{50}$**

Q13. A bag contains 8 red & 5 white balls. Two successive draws of 3 balls are made without replacement. The probability that the first draw will produce 3 white balls & second 3 red balls is:

(a) $\frac{6}{255}$ (b) $\frac{5}{548}$ **(c) $\frac{7}{429}$** (d) $\frac{3}{233}$

Q14. A box contains 12 electric lamps of which 5 are defectives. A man selects 3 lamps at random. Expected no. of defective lamps in his selection is __

(a) 1.25 (b) 2.50 (c) 1.05 (d) 2.03

Nov 2007

Q15. 3 identical dice are rolled. Probability that the same number will appear on each of them is:

(a) 1/6 (b) 1/12 **(c) 1/36** (d) 1

Q16. Among the examinees in an examination 30%, 35% & 45% failed in Statistics, in Mathematics & in at least one of the subjects respectively. An examinee is selected at random. Find probability that he failed in Mathematics only

(a) 0.245 (b) 0.25 (c) 0.254 (d) 0.55

Q17. An article consists of two parts A & B. The manufacturing process of each part is such that probability of defect in A is 0.08 & that B is 0.05. What is the probability that the assembled product will not have any defect?

(a) 0.934 (b) 0.864 (c) 0.85 **(d) 0.874**

Q18. Daily demand for calculators is having the following probability distribution:

Demand:	1	2	3	4	5	6
Probability:	0.10	0.15	0.20	0.25	0.18	0.12

Determine the variance of the demand.

(a) 2.54 (b) 2.93 **(c) 2.22** (d) 2.19

Feb 2008

Q19. If 10 men, among whom are A & B, stand in a row, what is the probability that there will be exactly 3 men between A & B?

(a) 11/15 (b) 4/15 (c) 1/15 **(d) 2/15**

Q20. Probability can assume any value between:

(a) 0 & 1 (b) - 1 & 0. (c) - 1 & 1 **(d) None**

Q21. The odds are 9:5 against a person who is 50 years living till he is 70 & 8:6 against a person who is 60 living till he is 80. Find the probability that at least one of them will be alive after 20 years:

(a) $\frac{11}{14}$ (b) $\frac{22}{49}$ **(c) $\frac{31}{49}$** (d) $\frac{35}{49}$

Q22. An urn contains 6 white & 4 black balls. 3 balls are drawn without replacement. Expected number of black balls that will be obtained is___.

(a) 6/5 (b) 1/5 (c) 7/5 (d) 4/5

June 2008

Q23. If P(A) = p & P (B) = q, then:

(a) P (A / B) ≤ q / p (b) P(A/B) ≥ p/q

(c) P (A / B) ≤ p / q (d) P (A / B) ≥ q / p

Q24. Probability that a trainee will remain with a company is 0.8. Probability that an employee earns more than Rs. 20,000 p.m. is 0.4. Probability that an employee, who was a trainee & remained with company or who earns more than Rs. 20,000 p.m. is 0.9. Probability that an employee earns more than Rs. 20,000 p.m. given that he is a trainee, who stayed with the company?

(a) 5/8 **(b) 3/8** (c) 1/8 (d) 7/8

Q25. A random variable X has the following probability distribution:

X	:	-2	3	1
P(X = x)	:	1/3	1/2	1/6

Find E (X^2) & E (2X + 5).

(a) 6 & 7 respectively (b) 5 & 7 respectively

(c) 7 & 5 respectively (d) 7 & 6 respectively

Q26. Limiting relative frequency of probability is:

(a) Axiomatic (b) Classical

(c) Statistical (d) Mathematical

Dec 2008

Q27. If a probability density function is f (x) = $\begin{cases} 1 \text{ if } 0 < x < 1 \\ 0 \text{ otherwise} \end{cases}$ then find E (x)

(a) ∞ (b) 0 **(c) 1** (d) - ∞

Q28. If:

x	:	-2	3	1
P(x)	:	1/3	½	1/6

then find E (2x + 5)

(a) 7 (b) 6 (c) 9 (d) 4

June 2009

Q29. If A & B are two independent events & P(A∪B) = 2/5; P(B) = 1/3. Find P(A).

(a) 2/9 (b) -1/3 (c) 2/10 **(d) 1/10**

Q30. A bag contains 12 balls of which 3 are red 5 balls are drawn at random. Find probability that in 5 balls 3 are red.

(a) 3/132 (b) 5/396 (c) 1/36 **(d) 1/22**

Q31. A random variable X has the following probability distribution.

X	0	1	2	3
P(x)	0	2K	3K	K

Then, P(x < 3) would be :

(a) 1/6 (b) 1/3 (c) 2/3 **(d) 5/6**

Dec 2009

Q32. P(A) = 2/3; P(B) = 3/5; P(A∪B) = 5/6. Find P(B/A)

(a) 11/20 **(b) 13/20** (c) 13/18 (d) None

Q33. If $P(A \cap B) = P(A) \times P(B)$, then events are:

(a) Independent events (b) Mutually exclusive events

(c) Exhaustive events (d) Mutually inclusive events

Q34. E(XY) is also known as:

(a) $E(X) + E(Y)$ **(b) $E(X)E(Y)$**

(c) $E(X) - E(Y)$ (d) $E(X) \div E(Y)$

Q35. In a bag, there were 5 white, 3 red, & 2 black balls. Three balls are drawn at a time what is the probability that the three balls drawn are white?

(a) 1/12 (b) 1/24 (c) 1/120 (d) None

Q36. In how many ways can letters of 'REGULATION' be arranged so that vowels come at odd places?

(a) 1/252 (b) 1/144 (c) 144/252 (d) None

June 2010

Q37. In a pack of playing cards with 2 jokers probability of getting king of spade is

(a) 4/13 (b) 4/52 (c) 1/52 **(d) 1/54**

Q38. Consider 2 events A & B not mutually exclusive, such that P(A) = 1/4, P(B) = 2/5, P(A∪B) = 1/2, then P(AB) is

(a) 3/7 (b) 2/10 (c) 1/10 **(d) None**

Q39. If x be sum of two numbers obtained when two die are thrown simultaneously then $P(x \geq 7)$ is
(a) 5/12 **(b) 7/12** (c) 11/15 (d) 3/8

Q40. $E(13x + 9) =$ _____.
(a) 13x (b) 13E(x) **(c) 13E(x)+9** (d) 9

Dec 2010

Q41. A dice is thrown once. What is the mathematical expectation of the number on the dice?
(a) 16/6 (b) 13/2 **(c) 3.5** (d) 4.5

Q42. If P(A/B) = P(A), then A & B are
(a) Mutually exclusive events (b) Dependent events
(c) Independent events (d) Composite events

Q43. A bag contains 3 white & 5 black balls & 2nd bag contains 4 white & 2 black balls. If 1 ball is taken from each bag, probability that both balls are white is:
(a) 1/3 **(b) ¼** (c) ½ (d) None

Q44. The odds in favour of A solving a problem is 5: 7 & odds against B solving the same problem is 9: 6. What is the probability that if both of them try, the problem will be solved?
(a) 117/180 (b) 181/200 (c) 147/180 (d) 119/180

Q45. Consider Urn I: 2 white balls, 3 black balls
Urn II: 4 white balls, 6 black balls
One ball is randomly transferred from first to second Urn, then one ball is drawn from II Urn. The probability that drawn ball is white is
(a) 22/65 (b) 22/46 **(c) 22/55** (d) 21/45

June 2011

Q46. If $P(A \cup B) = P(A)$, Find $P(A \cap B)$.
(a) $P(A) \cdot P(B)$ (b) $P(A) + P(B)$ (c) 0 **(d) $P(B)$**

Q47. A bag contains 5 Red balls, 4 Blue Balls & 'm' Green Balls. If random probability of picking two green balls is 1/7. What is the no. of green Balls (m).
(a) 5 (b) 7 **(c) 6** (d) None.

Q48. The probability of Girl getting scholarship is 0.6 & same probability for Boy is 0.8. Probability that at least one of categories getting scholarship.
(a) 0.32 (b) 0.44 **(c) 0.92** (d) None

Q49. A coin is tossed 5 times, what is the probability that exactly 3 heads will occur.
(a) $\frac{5}{16}$ (b) $\frac{1}{32}$ (c) $\frac{5}{36}$ (d) $\frac{3}{32}$

Dec 2011

Q50. Exactly 3 girls are to be selected from 5 Girls & 3 Boys. Probability of selecting 3 Girls will be _.
(a) $\frac{5}{28}$ (b) $\frac{1}{56}$ (c) $\frac{15}{28}$ (d) None.

Q51. Two unbiased dice are thrown. Expected value of the sum of numbers on the upper side is;
(a) 3.5 **(b) 7** (c) 12 (d) 6

Q52. One Card is drawn from pack of 52, what is the probability that it is a king or a queen?
(a) 11/13 **(b) 2/13** (c) 1/13 (d) None

Q53. In a packet of 500 pens, 50 are found to be defective. A pen is selected at random. Find the probability that it is non defective.
(a) 8/9 (b) 7/8 **(c) 9/10** (d) 2/3

Q54. Four married couples have gathered in a room. Two persons are selected at random amongst them, find the probability that selected persons are a gentleman & a lady but not a couple.
(a) 1/7 **(b) 3/7** (c) 1/8 (d) 3/8

Q55. A team of 5 is to be selected from 8 boys & 3 girls. Probability that it includes 2 particular girls is:
(a) 2/30 (b) 1/5 **(c) 2/11** (d) 8/9

June 2012

Q56. Let A & B two events in a sample space S such that $P(A) = \frac{1}{2}; P(B) = \frac{5}{8}, P(A \cup B) = \frac{3}{4}; P(A \cap B) =$__
(a) 3/4 **(b) ¼** (c) 3/16 (d) None

Q57. A card is drawn out of a standard pack of 52 cards. Probability of drawing a king or red colour?
(a) 1/4 (b) 4/13 **(c) 7/13** (d) ½

Q58. A player tosses two fair coins, he wins ₹ 5 if 2 heads appear, ₹ 2 if one head appears & ₹ 1 if no head occurs. Find his expected amount of winning.
(a) 2.5 (b) 3.5 (c) 4.5 (d) 5.5

Q59. Arun & Tarun appear for an interview for two vacancies. The probability of Arun's selection is 1/3 & that of Tarun's selection is 1/5 Find the probability that only one of them will be selected.
(a) 2/5 (b) 4/5 (c) 6/5 (d) 8/5

Q60. A co. employed 7 CA's, 6 MBA's & 3 Engineer's. In how many ways company can form a committee, if committee has 2 members of each type.
(a) 900 (b) 1,000 (c) 787 **(d) 945**

Dec 2012

Q61. Two dice are thrown together. Find the probability of getting a multiple of 2 on one 1st dice & multiple of 3 on the other dice.

(a) 2/3 **(b) 1/6** (c) 1/3 (d) None

Q62. The odds against A solving a certain problem are 4 to 3 & the odds in favour of B solving same problem are 7 to 5. What is the probability that the problem will be solved if they both try?

(a) 15/21 **(b) 16/21** (c) 17/21 (d) 13/21

Q63. Expected value of following probability distribution

x:	−20	−10	30	75	80
p(x):	3/20	1/5	½	1/10	1/20

(a) 20.5 **(b) 21.5** (c) 22.5 (d) 24.5

Q64. A bag contains 6 red balls & some blue balls. If probability of drawing a blue ball form the bag is twice that of a red ball, find no. of blue balls in bag

(a) 10 **(b) 12** (c) 14 (d) 16

June 2013

Q65. The probability of selecting a sample of size 'n' out of a population of size N by simple random sampling with replacement is:

(a) 1/N **(b) $1/N^n$** (c) $1/Nc_n$ (d) $\frac{1}{Nc_n n!}$

Q66. A box contains 2 red, 3 green & 2 blue balls. Two balls are drawn at random. Probability that none of the balls drawn is blue = ____

(a) 10/21 (b) 11/21 (c) 2/7 (d) 5/7

Q67. The odds that a book will be favourably received by 3 independent reviewers are 5 to 2,4 to 3 & 3 to 4 respectively. What is the probability that out of 3 reviewers a majority will be favourable?

(a) $\frac{209}{343}$ (b) $\frac{209}{434}$ (c) $\frac{209}{443}$ (d) $\frac{209}{350}$

Q68. A player tosses 3 fair coins. He wins ₹ 5 if three heads appear, ₹ 3 if two heads appear, ₹ 1 if one head occurs. On the other hand, he losses ₹ 15 if 3 tails occur. Find expected gain of the player:

(a) 0.15 **(b) 0.25** (c) 0.35 (d) 0.45

Q69. Find the probability of drawing an ace on each of two consecutive draws from a well shuffled pack of cards, without replacement

(a) $\frac{2}{51}$ **(b) $\frac{1}{221}$** (c) $\frac{4}{51}$ (d) $\frac{5}{51}$

Dec 2013

Q70. If $P(A) = 0.45, P(B) = 0.35$ & $P(A\&B) = 0.25$, then P(A/B)= ?

(a) 1.4 (b) 1.8 **(c) 0.714** (d) 0.556

Q71. Probability of a cricket team winning match at Kanpur is 2/5 & losing match at Delhi is 1/7. Probability of the team winning atleast one match is _

(a) 3/35 **(b) 32/35** (c) 18/35 (d) 17/35

Q72. Expected value of following probability distribution

X:	−20	−10	30	75	80
P(x):	3/20	1/5	1/2	1/10	1/20

(a) 20.5 **(b) 21.5** (c) 22.5 (d) 24.5

Q73. Two coins are tossed simultaneously. Find the probability of getting exactly are head.

(a) 3/4 (b) 2/3 (c) ¼ **(d) ½**

June 2014

Q74. If a pair of dice is thrown then the probability that sum of the digit is neither 7 nor 11 is ____.

(a) $\frac{1}{6}$ (b) $\frac{1}{18}$ (c) $\frac{2}{9}$ **(d) $\frac{7}{9}$**

Q75. An urn contains 2 red & 1 green balls. Another urn contains 2 red & 2 green balls. An urn was selected at random & then a ball was drawn from it. If it was found to be red then the probability that it has been drawn from urn one is ____.

(a) $\frac{4}{7}$ (b) $\frac{3}{7}$ **(c) $\frac{2}{3}$** (d) $\frac{7}{12}$

Q76. For any two events A_1, A_2 let $P(A_1) = \frac{2}{3}, P(A_2) = \frac{3}{8}$ & $P(A_1 \cap A_2) = \frac{1}{4}$ then A_1, A_2 are:

(a) Mutually exclusive but not independent events
(b) Mutually exclusive & independent events
(c) Independent but not mutually exclusive
(d) None of these

Dec 2014

Q77. An unbiased die is thrown twice. Probability of the sum of numbers obtained on two faces being divisible by 4 is:

(a) 7/36 (b) 1/3 (c) 11/36 **(d) 1/4**

Q78. Let distribution function of a random variable X be $F(X) = P(X \leq X)$. Then $F(5) - F(2)$ is:

(a) $P(2 < X < 5)$ (b) $P(2 \leq X < 5)$
(c) $P(2 \leq X \leq 5)$ **(d) $P(2 < X \leq 5)$**

Q79. Discrete random variable X takes values −1,2 & 3 with probabilities $p(-1) = \frac{1}{3}, p(2) = \frac{1}{3}, p(3) = \frac{1}{3}$, then $E(|X|)$ is:

(a) 3/2 (b) 5/2 **(c) 2** (d) 9/2

June 2015

Q80. Sum of numbers obtained in throw of a dice twice is S. Probability of S will be maximum if S is

(a) 5 **(b) 7** (c) 6 (d) 8

Q81. An unbiased coin is tossed 3 times. EV of the number of heads is

(a) 2.5 (b) 1.0 **(c) 1.5** (d) 2.0

Q82. For 2 events A_1 & A_2, let $P(A_1) = \frac{2}{3}$ & $P(A_2) = \frac{3}{8}$ & $P(A_1 \cap A_2) = \frac{1}{4}$, then

(a) mutually exclusive but not independent
(b) mutually exclusive & independent
(c) independent but not mutually exclusive
(d) none of these

Q83. From 6 positive & 8 negative numbers, 4 numbers are chosen at random without replacement & are then multiplied. The probability that the product of the chosen numbers will be positive number is

(a) $\frac{409}{1001}$ (b) $\frac{70}{1001}$ **(c) $\frac{505}{1001}$** (d) $\frac{420}{1001}$

Dec 2015

Q84. If an unbiased die is rolled once, the odds in favour of getting a point which is multiple of 3 is:

(a) 1:2 (b) 2:1 (c) 1:3 (d) 3:1

Q85. A bag contains 15 one-rupee coins, 25 two rupees coins & 10 five rupees coins, if a coin is selected at random then probability for not - selecting a one-rupee coin is:

(a) 0.30 (b) 0.20 (c) 0.25 **(d) 0.70**

Q86. 3 coins are tossed together, the probability of getting exactly two head is:

(a) $\frac{5}{8}$ **(b) $\frac{3}{8}$** (c) $\frac{1}{8}$ (d) None

Q87. If 2 letters are taken at random from word "HOME", what is probability that none of the letters would be vowels?

(a) $\frac{1}{6}$ (b) $\frac{1}{2}$ (c) $\frac{1}{3}$ (d) $\frac{1}{4}$

June 2016

Q88. In a game, cards are thoroughly shuffled & distributed equally among four players. Probability that a specific player gets all the 4 kings is ___

(a) $\frac{^{13}C_4 \times {}^{48}C_{13}}{^{52}C_{13}}$ **(b) $\frac{^{4}C_4 \times {}^{48}C_9}{^{52}C_{13}}$**
(c) $\frac{^{13}C_4 \times {}^{52}C_4}{^{52}C_{13}}$ (d) $\frac{^{4}C_4 \times {}^{39}C_9}{^{52}C_{13}}$

Q89. A bag contains 4 Red & 5 Black balls. Another bag contains 5 Red & 3 Black balls. If one ball is drawn at random from each bag. Then the probability that one Red & one Black drawn is ___

(a) $\frac{12}{72}$ (b) $\frac{25}{72}$ **(c) $\frac{37}{72}$** (d) $\frac{13}{72}$

Q90. If $P(A) = \frac{2}{3}$, $P(B) = \frac{3}{5}$ & $P(A \cup B) = \frac{5}{6}$ then $P\left(\frac{A}{B^1}\right)$ is

(a) $\frac{7}{12}$ (b) $\frac{5}{12}$ (c) $\frac{1}{4}$ (d) $\frac{1}{2}$

Q91. If two unbiased dice are rolled, Probability of getting points neither 3 nor 6?

(a) 0.25 (b) 0.50 (c) 0.75 **(d) 0.80**

Q92. Two dice are tossed. What is the probability that the total is divisible by 3 or 4.

(a) $\frac{20}{36}$ (b) $\frac{21}{36}$ (c) $\frac{14}{36}$ (d) None

Dec 2016

Q93. If two events A, B, $P(A) = \frac{1}{2}$, $P(B) = \frac{1}{3}$ & $P(A \cup B) = \frac{2}{3}$ then $P(A \cap B)$ is:

(a) $\frac{1}{4}$ **(b) $\frac{1}{6}$** (c) $\frac{2}{3}$ (d) $\frac{1}{2}$

Q94. A bag contains 6 white & 5 red balls. One ball is drawn. The probability that it is red is:

(a) $\frac{5}{11}$ (b) $\frac{6}{11}$ (c) $\frac{1}{11}$ (d) None

Q95. For two events A, B let $P(A) = \frac{2}{3}$, $P(B) = \frac{3}{8}$ & $P(A \cap B) = \frac{1}{4}$ then A & B are:

(a) Mutually exclusive but not independent
(b) Independent but not mutually exclusive
(c) Mutually exclusive & independent
(d) None of these

June 2017

Q96. Let A & B are two events with $P(A) = \frac{2}{3}$, $P(B) = \frac{1}{4}$ & $P(A \cap B) = \frac{1}{12}$, then P(B/A) will be:

(a) 7/8 (b) 1/3 **(c) 1/8** (d) 8/7

Q97. What is the probability of having at least one 'SIX' from 3 throws of an unbiased die?

(a) $\frac{5}{6}$ (b) $\left(\frac{5}{6}\right)^3$
(c) $1 - \left(\frac{1}{6}\right)^3$ **(d) $1 - \left(\frac{5}{6}\right)^3$**

Q98. For any two events A & B:

(a) $P(A - B) = P(A) - P(B)$
(b) $P(A - B) = P(A) - P(A \cap B)$
(c) $P(A - B) = P(B) - P(A \cap B)$
(d) $P(B - A) = P(B) + P(A \cap B)$

Dec 2017

Q99. If for two mutually exclusive events A & B $P(A \cup B) = \frac{2}{3}$ & $P(A) = \frac{2}{5}$ then what is the value of $P(B)$?

(a) $\frac{4}{15}$ (b) $\frac{4}{9}$ (c) $\frac{5}{9}$ (d) $\frac{7}{15}$

Q100. Probability distribution of demand for a commodity is given below:

Demand (x)	5	6	7	8	9	10
Probability [P(x)]	0.05	0.10	0.30	0.40	0.10	0.05

Expected value of demand will be

(a) 7.55 (b) 7.85 (c) 1.25 (d) 8.35

Q101. Given $P(A) = \frac{1}{2}, P(B) = \frac{1}{3}$ & $P(A \cap B) = \frac{1}{4}$, the value of P(A/B) is

(a) 1/2 (b) 1/6 (c) 2/3 **(d) 3/4**

Q102. A brother & his sister appear in an interview for two vacancies for the same post. The probability of brother's selection is $\frac{1}{7}$ & the probability of sister's selection is $\frac{1}{5}$. The probability that (i) both are selected (ii) only one of them is selected & (iii) none of them is selected will be:

(a) $\frac{1}{35}, \frac{10}{35}, \frac{24}{35}$ (b) $\frac{24}{35}, \frac{1}{35}, \frac{10}{35}$

(c) $\frac{10}{35}, \frac{1}{35}, \frac{24}{35}$ (d) $\frac{24}{35}, \frac{10}{35}, \frac{1}{35}$

June 2018

Q103. Two broad divisions of probability are:

(a) Subjective probability & objective probability

(b) Deductive probability & mathematical probability

(c) Statistical probability & mathematical probability

(d) None of these

Q104. Term "chance" & probability are synonyms:

(a) True (b) False (c) Both (d) None

Q105. The theorem of compound probability states that for any two events A an B

(a) $P(A \cap B) = P(A) \times P(B/A)$

(b) $P(A \cup B) = P(A) \times P(B/A)$

(c) $P(A \cap B) = P(A) \times P(B)$

(d) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

Q106. Variance of a random variable x is given by

(a) $E(X - \mu)^2$ (b) $E[X - E(X)]^2$

(c) $E(X^2 - \mu)$ **(d) (a) or (b)**

Q107. If two random variables x & y are related by $y = 2 - 3x$, then the SD of y is given by

(a) $-3 \times$ SD of × **(b) $3 \times$ SD of ×**

(c) $9 \times$ SD of × (d) $2 \times$ SD of ×

Q108. What is the probability of having at least one' six' in 3 throws of a project die?

(a) 5/6 (b) $(5/6)^3$

(c) $1 - (1/6)^3$ **(d) $1 - (5/6)^3$**

Q109. Sum of all probabilities mutually exclusive & exhaustive events is equal to

(a) 0 (b) ½ (c) ¼ **(d) 1**

Dec 2018

Q110. If, $P(A) = \frac{1}{2}, P(B) = \frac{1}{3}$, & $P(A \cap B) = \frac{1}{4}$, then $P(A \cup B)$ is equal to

(a) $\frac{11}{12}$ (b) $\frac{10}{12}$ **(c) $\frac{7}{12}$** (d) $\frac{1}{6}$

Q111. Probability that a leap year has 53 Wednesday is

(a) $\frac{2}{7}$ (b) $\frac{3}{5}$ (c) $\frac{2}{3}$ (d) $\frac{1}{7}$

Q112. A coin is tossed six times, then the probability of obtaining heads & tails alternatively is

(a) $\frac{1}{2}$ (b) $\frac{1}{64}$ **(c) $\frac{1}{32}$** (d) $\frac{1}{16}$

Q113. Ram is known to hit a target in 2 out of 3 shots whereas Shyam is known to hit the same target in 5 out of 11 shots. What is the probability that the target would be hit if they both try?

(a) $\frac{9}{11}$ (b) $\frac{3}{11}$ (c) $\frac{10}{33}$ (d) $\frac{6}{11}$

Q114. Two different dice are thrown simultaneously, then the probability, that the sum of two numbers appearing on the top of dice is 9 is:

(a) $\frac{8}{9}$ **(b) $\frac{1}{9}$** (c) $\frac{7}{9}$ (d) None

Q115. If $P(A \cup B) = 0.8$ & $P(A \cap B) = 0.3$, then $P(A) + P(B) =$

(a) 0.3 (b) 0.5 (c) 0.7 **(d) 0.9**

June 2019

Q116. If Y≥x then mathematical expectation is

(a) $E(X) > E(Y)$ **(b) $E(X) \leq E(Y)$**

(c) $E(X) = E(Y)$ (d) $E(X) \cdot E(Y) = 1$

Q117. Two event A & B are such that they do not occurs simultaneously, they are called ___ events

(a) Mutually exhaustive **(b) Mutually exclusive**

(c) Mutually independent (d) Equally likely

Q118. According to bayee's theorem,

$P(E_K/A) = \frac{P(E_K)P(A/E_K)}{\sum_{i-1}^{n} P(E_1)P(A/E_1)}$ here

(a) E_1, E_2 ..... are mutually exclusive

(b) $P(E/A_1), P(E/A_2)$ ..... are equal to 1

(c) $P(A_1/E), P(A_2/E)$ ..... are equal to 1

(d) A & E_1's are disjoint sets.

Q119. If a coin is tossed 5 times then the probability of getting Tail & Head occurs alternatively is

(a) $\frac{1}{8}$ **(b) $\frac{1}{16}$** (c) $\frac{1}{32}$ (d) $\frac{1}{64}$

Q120. When 2 - dice are thrown Simultaneously then the probability of getting at least one 5 is

(a) $\frac{11}{36}$ (b) $\frac{5}{36}$ (c) $\frac{8}{15}$ (d) $\frac{1}{7}$

Dec 2019

Q121. 2 letters are choosen from the word HOME. Probability that letters choosen are not vowels

(a) 1/2 **(b) 1/6** (c) 2/3 (d) 0

Q122. If A,B,C are 3 mutually exclusive & exhaustive events: P(A)=2(B)=3P(C) what is P(B)?

(a) 6/11 **(b) 3/11** (c) 1/6 (d) 1/3

Q123. What is the probability of getting 7 or 11 when two dices are thrown?

(a) 2/9 (b) 6/36 (c) 10/36 (d) 2/36

Q124. A bag contains 15 one-rupee coins, 25 two-rupee coins & 10 five-rupee coins. If a coin is selected at random, probability for not selecting a one-rupee coin is:

(a) 0.30 (b) 0.20 (c) 0.25 **(d) 0.70**

Q125. What is probability of occurring 4 or more than 4 accidents.

No. of acc.	0	1	2	3	4	5	6	7
Frequency	36	27	33	29	24	27	18	9

(a) 24 (b) 69 **(c) 78** (d) 80

Dec 2020

Q126. When 2 fair dice are thrown what is the probability of getting the sum which is a multiple of 3?

(a) 4/36 (b) 13/36 (c) 2/36 **(d) 12/36**

Q127. When two coins are tossed simultaneously the probability of getting at least one tail?

(a) 1 **(b) 0.75** (c) 0.5 (d) 0.25

Q128. When 3 dice are rolled simultaneously probability of a number on the third die is greater than the sum of the numbers on two dice.

(a) 12/216 (b) 36/216 (c) 48/216 **(d) 20/216**

Q129. If a speaks 75% of truth & B speaks 60% of truth. In what percentage both of them likely contradict with each other in narrating the same questions?

(a) 0.60 **(b) 0.45** (c) 0.65 (d) 0.35

Jan 2021

Q130. An event that can be subdivided into further events is called as.

(a) A composite event (b) A complex event
(c) A mixed event (d) A simple event

Q131. Three identical & balanced dice are rolled. The probability that the same number will appear on each of them is.

(a) $\frac{1}{6}$ (b) $\frac{1}{18}$ **(c) $\frac{1}{36}$** (d) $\frac{1}{24}$

Q132. A basket contains 15 white balls, 25 red balls & 10 blue balls. If a ball is selected at random, the probability of selecting not a white ball.

(a) 0.20 (b) 0.25 (c) 0.60 **(d) 0.70**

Q133. Two dice are thrown simultaneously. The probability of a total score of 5 from outcomes of dice-is.

(a) $\frac{1}{18}$ (b) $\frac{1}{12}$ **(c) $\frac{1}{9}$** (d) $\frac{2}{5}$

Q134. If an unbiased coin is tossed twice, then the probability of obtaining at least one tail is.

(a) 1 (b) 0.5 **(c) 0.75** (d) 0.25

Q135. If an unbiased coin is tossed 3 times, what is the probability of getting more than one head?

(a) $\frac{1}{2}$ (b) $\frac{3}{8}$ (c) $\frac{7}{8}$ (d) $\frac{1}{3}$

July 2021

Q136. If there are 48 marbles market with numbers 1 to 48, then the probability of selecting a marble having the number divisible by- 4 is:

(a) ½ (b) 2/3 (c) 1/3 **(d) 1/4**

Q137. A bag contains 7 blue & 5 Green balls. One ball is drawn at random. Probability of getting a blue ball is

(a) 5/12 (b) 12/35 **(c) 7/12** (d) 0

Q138. Probability that a football team losing a match at Kolkata is 3/5 & winning a match at Bengaluru is 6/7; the probability of team winning at least one match is

(a) 3/35 (b) 18/35 **(c) 32/35** (d) 17/35

Q139. If in a class, 60% of student study. Mathematics & science & 90% of the student study science, then the probability of a student studying mathematics given that he/she is already studying science is:

(a) ¼ **(b) 2/3** (c) 1 (d) 1/2

Q140. A biased coin is such that the probability of getting a head is thrice the probability of getting a tail, if coin is tossed 4 times, what is probability of getting a head all the times?

(a) 2/5 (b) 81/128 **(c) 81/256** (d) 81/64

Q141. If there are 16 phones, 10 of them are Android & 6 of them are of Apple, then probability of 4 randomly selected phones to include 2 Android & 2 Apple phone is:

(a) 0.47 (b) 0.51 **(c) 0.37** (d) 0.27

Q142. The value of K for the probability density function of a variate X is equal to:

X	0	1	2	3	4	5	6
P(x)	5k	3k	4k	6k	7k	9k	11k

(a) 39 (b) $\frac{1}{40}$ (c) $\frac{1}{49}$ **(d) $\frac{1}{45}$**

Dec 2021

Q143. For any two dependent events A & B, $P(A) = 5/9$ & $P(B) = 6/11$ & $P(A \cap B) = 10/33$. What are the values of P(A/B) & P(B/A)?

(a) 5/9, 6/11 (b) 5/6, 6/11
(c) 1/9, 2/9 (d) 2/9, 4/9

Q144. Which of the following pair of events E & F are mutually exclusive?

(a) E = {Ram's age is 13} & F = {Ram is studying in a college}
(b) E = {Sita studies in a school} & F = {Sita is a play back singer}
(c) E = {Raju is an elder brother in a family} & F = {Raju's father has more than one son}
(d) E = {Banu studied B.A.Engilsh literature &}F = {Banu can read English novels}

Q145. Assume that the probability for rain on a day is 0.4. An umbrella salesman can earn ₹ 400 per day in case of rain on that day & will lose ₹ 100 per day if there is no rain. The expected earnings in (in ₹) per day of the salesman is

(a) 400 (b) 200 **(c) 100** (d) 0

Q146. Probability distribution of a random variable x is given below:

x:	1	2	4	5	6
P:	0.15	0.25	0.2	0.3	0.1

What is the standard deviation of x?

(a) 1.49 (b) 1.56 **(c) 1.69** (d) 1.72

Q147. In a group of 20 males & 15 females, 12 males & 8 females are service holders. Probability that a person selected at random from the group is a service holder given that the selected person is a male?

(a) 0.40 **(b) 0.60** (c) 0.45 (d) 0.55

Q148. There are 3 boxes with the following composition:
Box I: 7 Red +5 White +4 Blue balls
Box II: 5 Red +6 White +3 Blue balls
Box III: 4 Red +3 White +2 Blue balls
One of the boxes is selected at random & a ball is drawn from It. What is probability drawn ball is red?

(a) 1249/3024 (b) 1247/3004
(c) 1147/3024 (d) 1/2

Q149. For a probability distribution, probability is given by, $P(X_i) = \frac{X_i}{k}, X_i = 1, 2, \ldots 9$. Value of k is

(a) 55 (b) 9 **(c) 45** (d) 81

June 2022

Q150. A dice is rolled twice. Find the probability of getting numbers multiple of 3 or 5?

(a) $\frac{1}{3}$ (b) $\frac{1}{4}$ **(c) $\frac{1}{2}$** (d) $\frac{1}{6}$

Q151. What is the probability of occurrence of leap year having 53 Sunday?

(a) $\frac{1}{7}$ **(b) $\frac{2}{7}$** (c) $\frac{3}{7}$ (d) $\frac{4}{7}$

Q152. If in a bag of 30 balls numbered from 1 to 30. Two balls are drawn find probability of getting a ball being multiple of 2 or 5

(a) $\frac{108}{465}$ **(b) $\frac{117}{435}$** (c) $\frac{117}{300}$ (d) $\frac{116}{485}$

Q153. Two perfect dice are rolled what is the probability that one appears at least in one of the dice?

(a) $\frac{7}{36}$ **(b) $\frac{11}{36}$** (c) $\frac{9}{36}$ (d) $\frac{15}{36}$

Q154. If two dice are rolled & one dice shows 1 at a point then how many such outcome can be done where it is known that its probability is $\frac{x}{36}$, where x = _.

(a) 11 (b) 7 (c) 8 (d) 9

Q155. If $P(A) = 0.3; P(B) = 0.8$ & $P\left(\frac{B}{A}\right) = 0.5$, find $P(A \cup B)$

(a) 0.85 **(b) 0.95** (c) 0.55 (d) 0.5

Q156. If PQ are the odds in favour of an event, then the probability of that event is

(a) $\frac{p}{q}$ **(b) $\frac{p}{p+q}$** (c) $\frac{q}{p+q}$ (d) $\frac{q}{p}$

Dec 2022

Q157. A machine is made of two parts A & B. The manufacturing process of each part is such that probability of defective in part A is 0.08 & that B is 0.05. What is the probability that the assembled part will not have any defect?

(a) 0.934 (b) 0.864 (c) 0.85 **(d) 0.874**

Q158. If $P(A) = \frac{1}{3}, P(B) = \frac{3}{4}$ & $P(A \cup B) = \frac{11}{12}$ then $P\left(\frac{B}{A}\right)$ is:

(a) $\frac{1}{6}$ (b) $\frac{4}{9}$ **(c) $\frac{1}{2}$** (d) $\frac{1}{8}$

Q159. Probability that a leap year has 53 Monday is:

(a) $\frac{1}{7}$ (b) $\frac{2}{3}$ **(c) $\frac{2}{7}$** (d) $\frac{3}{5}$

Q160. Suppose A & B are two independent events with probabilities $P(A) \neq 0$ & $P(B) \neq 0$. Let A′ & B′ be their complements. Which of the following statements in FALSE?

(a) $P(A \cap B) = P(A)P(B)$ (b) $P(A/B) = P(A)$
(c) $P(A \cup B) = P(A) + P(B)$ (d) $P(A' \cap B') = P(A')P(B')$

Q161. Theorem of Compound Probability states that for any two events A & B.

(a) $P(A \cap B) = P(A) \times P(B/A)$
(b) $P(A \cup B) = P(A) \times P(B/A)$
(c) $P(A \cap B) = P(A) \times P(B)$
(d) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

Q162. If a number is selected at random from first 50 natural numbers, what will be the probability that the selected number is a multiple of 3 & 4?

(a) 5/50 **(b) 2/25** (c) 3/30 (d) 4/25

Q163. If three coins are tossed simultaneously, what is the probability of getting two heads together?

(a) ¼ (b) 1/8 (c) 5/8 **(d) 3/8**

June 2023

Q164. Four persons are chosen at random frame a group of 3 men, 2 women & 4 children. The probability that exactly 2 of them are children is?

(a) 10/21 (b) 1/12 (c) 1/5 (d) 1/9

Q165. If P(A) = 1/3, P(B) = ¼, P(A/B) = 1/6, the probability P(B/A) is

(a) 1/8 (b) ¼ (c) 3/8 (d) 1/2

Q166. Company a produces 10% defective products, company B produces 20% defective products, company C produces 5% defective products. If choosing company is an equally likely event. What is probability that the product. Chosen is free from defect.

(a) 0.88 (b) 0.80 (c) 0.79 (d) 0.78

Q167. The probability distribution of x given below.

Value of x	1	0	Total
Probability	P	1-P	1

Mean is equal to

(a) P (b) 1 – P (c) 0 (d) 1

Q168. For any two events A & B. It is $P(A) = 2/3, P(B) = 3/8$ & $P(A\ B) = ¼$. Then the events A & B are

(a) Mutually exclusive & independent

(b) Mutually not exclusive & independent

(c) Mutually exclusive, But not independent

(d) Neither independent nor mutually exclusive

Q169. The Probability that a 4-digit number comprising the digit 2, 5, 6 & 7 without refection of digits would be divisible by 4.

(a) ½ (b) ¾ (c) ¼ **(d) 1/3**

Q170. On a commodity exchange when booking traits with provision for stop strider can make a profit of ₹ 50,000 or incur a loss of ₹ 20,000. The probability of making profit an incurring loss from the part experience are known to be ___ & 0.5 respectively. The expected profit to be made by trader should be.

(a) ₹ 32,500 (b) ₹ 35,000 (c) ₹ 30,000 (d) ₹ 35,200

Q171. If a random variable X has the following probability distribution, then the expected value of X is:

X	-1	-2	0	1	2
F(X)	1/3	1/6	1/5	1/6	1/3

(a) 3/2 (b) 1/2/ **(c) 1/6** (d) 1/5

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Theoretical Distribution

TO BUY HARDCOPY OF PYQs

SCAN ME

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Nov 2006

Q1. Parameter is a characteristic of:

(a) Population (b) Sample
(c) Probability distribution (d) Both (a) & (b)

Q2. What is the probability of making 3 correct guesses in 5 True-False answer type questions?

(a) 0.4156 (b) 0.32 **(c) 0.3125** (d) 0.5235

Q3. The 1.Q.'s of army volunteers in a given year are normally distributed with Mean=110 & SD = 10. Army wants to give advance training to 20% of those recruits with the highest scores. Lowest 1.Q score acceptable for the advanced training=? (Value of Z for area 0.3=0.84)

(a) 0.84 **(b) 118.4** (c) 138.4 (d) 115.4

Feb 2007

Q4. No. of calls arriving at an internal switch board of an office is 96 per hour. Probability that there will be:

(i) not more than 3 calls on the board,

(ii) at least 3 calls in a minute on board. [Given: $e^{-1.6} = 0.2019$]

(a) 0.08 & 0.92 resp. (b) 0.19 & 0.92 resp.
(c) 0.92 & 0.13 resp. **(d) 0.92 & 0.08 resp.**

Q5. For a normal distribution with mean 150 & S.D. 45; find Q_1 & Q_3:

(a) 119.35 & 190.65 resp. **(b) 119.65 & 180.35 resp.**
(c) 180.35 & 119.65 resp. (d) 123.45 & 183.65 resp.

Q6. Probability density function of a normal variable x is given by:

(a) $f(x) = \frac{1}{\sigma\sqrt{2\pi}} . e^{\frac{-(x-\mu)^2}{2\sigma^2}}$ for $0 < x < -\infty$

(b) $f(x) = \frac{1}{\sqrt{2\pi}\sigma} . e^{\frac{-(x-\mu)^2}{2\sigma^2}}$ for $-\infty < x < -\infty$

(c) $\mathbf{f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2}}$ **for** $\mathbf{-\infty < x < -\infty}$

(d) None of these

May 2007

Q7. The Interval (μ -3δ, μ + 3δ) covers:.

(a) 95% area of normal distribution
(b) 96% area of normal distribution
(c) 99% area of normal distribution
(d) All but 0.27% area of a normal distribution

Q8. The overall percentage of failure in a certain examination is 0.30. What is the probability that out of a group of 6 candidates at least 4 passed the examination?

(a) 0.74 (b) 0.71 (c) 0.59 (d) 0.67

Q9. A manufacturer, who produces medicine bottles, finds that 0.1 % of the bottles are defective. The bottles are packed in boxes containing 500 bottles. A drug manufacturer buys 100 boxes from the producer of bottles. Using Poisson distribution, find how many boxes will contains at least two defectives: [Given: $e^{-0.5} = 0.6065$]

(a) 7 (b) 13 **(c) 9** (d) 11

Aug 2007

Q10. No. of methods of fitting normal curve is:

(a) 4 (b)3 **(c) 2** (d) 1

Q11. Suppose that weather records show that on an average 5 out of 31 days in October are rainy days. Assuming a binomial distribution with each day of October as an independent trial, then the probability that the next October will have at most three rainy days is:

(a) 0.4403 **(b) 0.2403** (c) 0.3403 (d) None

Q12. If 5% families in Kolkata do not use gas as a fuel, Probability of selecting 10 families in a random sample of 100 families who do not use gas=? [Given: $e^{-5} = 0.0067$]

(a) 0.038 (b) 0.028 (c) 0.048 **(d) 0.018**

Q13. If 1st quartile & MD about median of a normal distribution are 13.25 & 8 resp, then mode of distribution=

(a) 20 (b) 10 (c) 15 (d) 23

Nov 2007

Q14. If 15 dates are selected at random, then the probability of getting two Sundays is:

(a) 0.29 (b) 0.99 (c) 0.49 (d) 0.39

Q15. if X is a Poisson variate with P (X = 0) = P (X = 1), then P (X = 2) =?

(a) $\frac{1}{2e}$ (b) $\frac{e}{6}$ **(c)** $\frac{1}{2e}$ (d) $\frac{e}{3}$

Q16. A sample of 100 dry battery cells tested to find length of life produced the following results: $\bar{x}$ = 12 hours, σ = 3 hours. What % of battery cells are expected to have life less than 6 hours? [Area under the normal curve from z = 0 to z = 2 is 0.4772]

(a) 2.28% (b) 2.56% (c) 4.56% (d) 1.93%

Feb 2008

Q17. The method usually applied for fitting a binomial distribution is known as:

(a) Method of probability distribution
(b) Method of deviations
(c) Method of moments
(d) Method of least squares.

Q18. If X follows a normal distribution with μ=50 & σ=0. What is value of P $\left(\frac{x\leq 60}{x>50}\right)$: [Area under the normal curve from z = 0 to z = 1 is 0.3413]

(a) 0.6826 (b) 0.7354 (c) 0.1983 (d) 0.5492

Q19. In certain manufacturing process, 5% of tools produced turn out to be defective. Find the probability that in a sample of 40 tools, utmost 2 will be defective: [Given: $e^{-2} = 0.135$]

(a) 0.555 (b) 0.932 (c) 0.785 **(d) 0.675**

Q20. Examine the validity of the following: Mean & SD of a binomial distribution are 10 & 4 respectively.

(a) Not valid (b) Valid
(c) Both(a)&(b) (d) Neither (a) nor (b)

June 2008

Q21. An experiment succeeds twice as often as it fails. What is the probability that in next five trials there will be at least three successes?

(a) $\frac{33}{81}$ (b) $\frac{46}{81}$ **(c) $\frac{64}{81}$** (d) $\frac{25}{81}$

Q22. Probability than a man aged 45 years will die within a year is 0.012. Probability that of 10 men, at least 9 will reach their 46th birthday? [Given: $e^{-0.12} = 0.88692$]

(a) 0.0935 **(b) 0.9934** (c) 0.9335 (d) 0.9555

Q23. For a certain normal variate X, the mean is 12 and S.D. is 4. Find P (X ≥ 20): [Area under the normal curve from z = 0 to z = 2 is 0.4772]

(a) 0.5238 (b) 0.0472 (c) 0.7272 **(d) 0.0228**

Q24. In Poisson Distribution, probability of success is very close to:

(a) -1 **(b) 0** (c) 1 (d) None

Dec 2008

Q25. If x and y are two independent standard normal variables, then the distribution of $\frac{x}{y}$ is :

(a) Normal Distribution (b) Exponential Distribution
(c) Couchy's Distribution (d) Binomial Distribution

Q26. If X & Y are two independent random variables such that $X \sim X^2_m$ & $Y \sim X^2_n$, then the distribution of (x + y) is

(a) normal (b) standard normal
(c) T **(d) Chi-square**

Q27. If the mean of a Poisson variable X is 1, what is P (x = at least one)?

(a) 0.456 (b) 0.821 **(c) 0.632** (d) 0.254

Q28. What is the probability of getting 3 heads if 6 unbiased coins are tossed simultaneously?

(a) 0.3125 (b) 0.25 (c) 0.6875 (d) 0.50

June 2009

Q29. In Poisson distribution $P(x = 0) = P(X = 2)$ E(x)=

(a) $\sqrt{2}$ (b) 2 (c) -1 (d) 0

Dec 2009

Q30. Shape of Normal Distribution Curve:

(a) Depends on its parameters
(b) Does not depend on its parameters
(c) Either (a) or (b) (d) Neither (a) nor (b)

Q31. For binomial distribution $E(x) = 2, V(x) = 4/3$. n = ?.

(a) 3 (b) 4 (c) 5 **(d) 6**

Q32. What are the parameters of binomial distribution?

(a) n (b) p **(c) Both n & p** (d) None

June 2010

Q33. The Variance of standard normal distribution is

(a) 1 (b) μ (c) σ^2 (d) 0

Q34. For Poisson distribution $P(x = 3) = 5P(x = 5)$ SD=?

(a) 4 (b) 2 (c) 16 **(d) $\sqrt{2}$**

Q35. For a Binomial distribution $B(6, p), P(x = 2) = 9p(x = 4)$, then P is

(a) ½ (b) 1/3 (c) 10/13 **(d) 1/4**

Q36. In Binomial distribution n = 9 & P = 1/3, variance=?

(a) 8 (b) 4 **(c) 2** (d) 16

Dec 2010

Q37. If SD of a Poisson distribution is 2, then its

(a) Mode is 2 (b) Mode is 4
(c) Modes are 3 & 4 (d) Modes are 4 & 5

Q38. The area under the Normal curve is

(a) 1 (b) 0 (c) 0.5 (d) -1

Q39. For $N(\mu, \sigma^2)$, $P(\mu - 3\sigma < x < \mu + 3\sigma)$ =

(a) 0.9973 (b) 0.9546 (c) 0.9899 (d) 0.9788

Q40. If for $B(n, p,)$ mean = 6 & Variance = 2 then 'p' is

(a) 2/3 (b) 1/3 (c) 3/5 (d) 1/4

June 2011

Q41. If inflexion points of a Normal Distribution are 6 & 14. Find its SD?

(a) 4 (b) 6 (c) 10 (d) 12.

Q42. In a Binomial Distribution, if mean is k-times the variance, then the value of 'k' will be _____.

(a) p (b) $\frac{1}{p}$ (c) $1-p$ **(d) $\frac{1}{1-p}$**

Q43. If $x \sim N(3,36)$ & $y \sim N(5,64)$ are two independent Normal variates with their standard parameters of distribution, then if $(x+y) \sim N(8,A)$ also follows normal distribution. The value of A will be _____.

(a) 100 **(b) 10** (c) 64 (d) 36

Dec 2011

Q44. The mean of Binomial distribution is 20 & Standard deviation is 4 then;

(a) n=100, p=1/5, q=4/5 (b) n=50, p=2/5, q=2/5

(c) n=100, p=2/5, q=4/5 (d) n=100, p=1/5, q=3/5

Q45. A Company has two cars which it hires out during the day. The number of Cars demanded in a day has poison distribution with mean 1.5. Then percentage of days on which only one car was in demand is equal to

(a) 23.26 **(b) 33.47** (c) 44.62 (d) 46.40

Q46. Binomial distribution with mean 3 & variance 2 is:

(a) $\left(\frac{2}{4}+\frac{1}{4}\right)^{2\Rightarrow 9}$ (b) $\left(\frac{2}{6}+\frac{1}{6}\right)^{2\Rightarrow 9}$

(c) $\left(\frac{2}{3}+\frac{1}{3}\right)^{2\Rightarrow 9}$ (d) $\left(\frac{2}{5}+\frac{1}{5}\right)^{2\Rightarrow 9}$

June 2012

Q47. For binomial distribution

(a) Variance < Mean (b) Variance = Mean

(c) Variance > Mean (d) None of the above.

Q48. If x is a Poisson variate & $E(x)=1$, then $P(x>1)$ is

(a) $1-\frac{e^{-1}}{2}$ (b) $1-e^{-1}$ **(c) $1-2e^{-1}$** (d) $1-\frac{5}{2}e$

Q49. The mean & the variance of a random variable X having the probability density function $P(X=x)=\exp\{-(x-4)^2\}/\sqrt{\pi}, -\infty < x < \infty$ is.

(a) $4, \frac{1}{2}$ (b) $4, \frac{1}{\sqrt{2}}$ (c) 2,2 (d) $2, \frac{1}{2}$

Dec 2012

Q50. In a Normal Distribution

(a) The 1st & 2nd quartile are equidistant from median

(b) The 2nd & 3rd quartiles are equidistant from the median

(c) The 1st & 3rd quartiles are equidistant from the mean

(d) None of the above.

Q51. If parameters of a binomial distribution are n & p then, this distribution tends to a Poisson distribution when

(a) $n \to \infty, p \to 0$ (b) $p \to 0, np = \lambda$

(c) $n \to \infty, np = \lambda$ **(d) $n \to \infty, p \to 0, np = \lambda$**

Q52. If a random variable x follows Poisson distribution such that E(x)=30, then variance of the distribution is

(a) 7 (b) 5 **(c) 30** (d) 20

Q53. In a normal distribution quartile deviation is 6, the standard deviation will be

(a) 4 **(b) 9** (c) 7.5 (d) 6

June 2013

Q54. The mode of the Binomial Distribution for which the mean is 4 & variance 3 is equal to?

(a) 4 (b) 4.25 (c) 4.5 (d) 4.1

Q55. For Poisson Distribution:

(a) Mean & SD are equal **(b) Mean & variance are equal**

(c) SD & variance are equal (d) Both (a) & (b) are correct

Q56. Which of the following is not a characteristic of a normal probability distribution?

(a) Mean of normally distributed population lies at the centre of its normal curve.

(b) It is multi-modal

(c) Mean, median & mode are equal

(d) It is a symmetric curve

Q57. Relation between QD & S.D of normal distribution is:

(a) $5QD = 4SD$ (b) $4QD = 5SD$

(c) $2QD = 3SD$ **(d) $3QD = 2SD$**

Q58. In a binomial Distribution with 5 independent trials, probability of 2 & 3 successes are 0.4362 & 0.2181 respectively. Parameter 'p' of the binomial distribution is:

(a) 3/4 **(b) 1/3** (c) 2/3 (d) 1/4

Dec 2014

Q59. In a Poisson frequency distribution, probability corresponding to two successes is half the probability corresponding to three successes. Mean of distribution is

(a) 6 (b) 12 (c) 3 (d) 2.45

June 2014

Q60. Mean & Variance of a binomial variance are 4 & $\frac{4}{3}$ respectively then $P(x \geq 1)$ will be _____.

(a) $\frac{728}{729}$ (b) $\frac{1}{729}$ (c) $\frac{723}{729}$ (d) None

Q61. 5,000 students were appeared in an examination. The mean of marks was 39.5 with a Standard Deviation 12.5

marks. Assuming the distribution to be normal, find the number of students recorded more than 60% marks. Given: When Z = 1.64, Area of normal curve = 0.4495
(a) 1,000 (b) 505 **(c) 252** (d) 2,227

Q62. If a variate X has, mean > variance, then its distribution will be _____.
(a) Binomial distribution (b) Poisson distribution
(c) Normal distribution (d) T-distribution

Dec 2014

Q63. If six coins are tossed simultaneously. The probability of obtaining exactly two heads are:
(a) 1/64 (b) 63/64 **(c) 15/64** (d) None

Q64. If x & y are two independent normal random variables, then the distribution of x+y is:
(a) Normal (b) T-distribution
(c) Chi-square (d) F-distribution

Q65. For a normal distribution having mean = 2 & variance ≥ 4, the fourth central moment μ_4 is:
(a) 16 (b) 32 **(c) 48** (d) 64

Q66. T-test can be used only when sample is taken from
(a) Binomial Population (b) Poisson Population
(c) Normal Population (d) Exponential Population

Q67. For binomial distribution with mean= 4 & variance = 3, the third central moment μ_3 is:
(a) 5/2 (b) 7/4 **(c) 3/2** (d) 1/3

June 2015

Q68. If x is a binomial variable with parameters n & p, then x can assume
(a) any value between 0 & n
(b) any value between 0 & n, both inclusive
(c) any whole number between 0 & n, both inclusive
(d) any number between 0 & infinity

Q69. In _____ distribution, mean = variance
(a) Normal (b) Binomial **(c) Poisson** (d) None

Q70. Under a normal curve $\bar{x} \pm 3\sigma$ covers _____
(a) 100% (b) 99% **(c) 99.73%** (d) 99.37%

Q71. If 'x' is a binomial variable with parameter 15 & $\frac{1}{3}$, then the value of the mode of the distribution:
(a) 5 (b) 5 & 6 (c) 5.50 (d) 6

Dec 2015

Q72. SD of binomial distribution is:
(a) $\sqrt{np}$ (b) $(np)^2$ **(c) $\sqrt{npq}$** (d) $(npq)^2$

Q73. The wages of workers of factory follows:
(a) Binomial distribution (b) Poisson distribution
(c) Normal distribution (d) Chi-square distribution

June 2016

Q74. The normal curve is:
(a) Positively skewed (b) Negatively skewed
(c) Symmetrical (d) All these

Q75. For a Poisson variate X, $P(X = 1) = P(X = 2)$, what is the mean of X?
(a) 1 (b) $\frac{3}{2}$ **(c) 2** (d) $\frac{5}{2}$

Q76. In a discrete random variable X follows uniform distribution & assumes only the values 8,9,11,15,18,20. Then $P(X \leq 15)$ is _____
(a) $\frac{1}{2}$ (b) $\frac{1}{3}$ **(c) $\frac{2}{3}$** (d) $\frac{2}{5}$

Dec 2016

Q77. If x & y are independent normal variates with Mean & Standard Deviation as μ_1 & μ_2 & σ_1 & σ_2 respectively, then $z = x + y$ also follows normal distribution with
(a) Mean = $\mu_1 + \mu_2$ & S.D. = 0 respectively
(b) Mean = 0 & S.D. = ${\sigma_1}^2 + {\sigma_2}^2$
(c) Mean = $\mu_1 + \mu_2$ & S.D. = $\sqrt{\sigma_1^2 + \sigma_2^2}$
(d) None of these.

Q78. A Poisson random variable has $\mu_4 = 2$, its variance i.e., μ_2 is
(a) $\frac{2}{3}$ (b) $\frac{1}{2}$ (c) $\frac{1}{3}$ (d) $\frac{3}{2}$

Q79. Name the distribution which has Mean = Variance
(a) Binomial **(b) Poisson** (c) Normal (d) Chi-square

Q80. An example of a bi-parametric continuous probability distribution:
(a) Binomial (b) Poisson **(c) Normal** (d) (a) & (b)

June 2017

Q81. If $X \sim N(50,16)$, then which of the following is not possible:
(a) $P(X > 60) = 0.30$ (b) $P(X < 50) = 0.50$
(c) $P(X < 60) = 0.40$ (d) $P(X > 50) = 0.50$

Q82. If for a distribution mean = variance, then the distribution is said to be:
(a) Normal (b) Binomial **(c) Poisson** (d) None

Q83. For a Binomial distribution if variance = (Mean)^2, then the values of n & p will be:

(a) 1 & $\frac{1}{2}$ (b) 2 & $\frac{1}{2}$ (c) 3 & $\frac{1}{2}$ (d) 1 & 1

Dec 2017

Q84. In a normal distribution about 95 % of observations lie between _____ & _____.

(a) $\mu - 2\sigma, \mu + 2\sigma$ (b) $\mu - 3\sigma, \mu + 3\sigma$

(c) $\mu - 1.96\sigma, \mu + 1.96\sigma$ (d) $\mu - 2.58\sigma, \mu + 2.58\sigma$

Q85. An example of a bi-parametric discrete probability distribution is

(a) Binomial distribution (b) Poisson distribution

(c) Normal distribution (d) Both (a) & (b)

Q86. In _____ distribution, mean = variance

(a) Normal (b) Binomial **(c) Poisson** (d) None

June 2018

Q87. The variance of a binomial distribution with parameters n & p is:

(a) $np^2(1-p)$ (b) $\sqrt{np-(1-p)}$

(c) $nq(1-q)$ (d) $n^2p^2(1-P)^2$

Q88. X is a poisson variate satisfying the following condition $9P(X = 4) + 90\ (X = 6) = P(X = 2)$. What is the value of $P(X \leq 1)$?

(a) 0.5655 (b) 0.6559 **(c) 0.7358** (d) 0.8201

Q89. 1st quartile of x having the following probability density function? $f(x) = \frac{1}{\sqrt{72\pi}} e^{-(x-10)^2/72}$ for $-\infty < x < \infty$

(a) 4 (b) 5 **(c) 5.95** (d) 6.75

Q90. An example of a bi-parametric discrete probability distribution is

(a) binomial distribution (b) Poisson distribution

(c) normal distribution (d) both (a) & (b)

Q91. Probability distribution may be

(a) discrete (b) continuous (c) infinite **(d) (a) or (b)**

Q92. If the area of standard normal curve between $z = 0$ to $z = 1$ is 0.3412, then the value of $\phi(1)$ is.

(a) 0.5000 **(b) 0.8413** (c) -0.5000 (d) 1

Dec 2018

Q93. For a Poisson variate X, $P(X = 2) = 3P(X = 4)$, then the standard deviation of X is

(a) 2 (b) 4 **(c) $\sqrt{2}$** (d) 3

Q94. Mean of Binomial distribution $B\left(4, \frac{1}{3}\right)$ is equal to

(a) $\frac{3}{5}$ (b) $\frac{8}{3}$ (c) $\frac{3}{4}$ **(d) $\frac{4}{3}$**

Q95. If for a normal distribution $Q_1 = 54.52$ & $Q_3 = 78.86$, then the median of the distribution is

(a) 12.17 (b) 39.43 **(c) 66.69** (d) None

Q96. Mean of X having the following density function? $f(x) = \frac{1}{4\sqrt{2\pi}} \cdot e^{\frac{-(x-10)^2}{32}}$ for $-\infty < x < \infty$

(a) 10 (b) 4 (c) 40 (d) None

Q97. The probability that a student is not a swimmer is $\frac{1}{5}$, then the probability that out of five students four are swimmer is

(a) $\left(\frac{4}{5}\right)^4\left(\frac{1}{5}\right)$ (b) ${}^5C_1\left(\frac{1}{5}\right)^4\left(\frac{4}{5}\right)$

(c) ${}^5C_4\left(\frac{4}{5}\right)^1\left(\frac{1}{5}\right)^4$ **(d) None of the above**

June 2019

Q98. 4 coins were tossed 1600 times. What is probability that all 4 coins do not turn head upward at a time?

(a) $1600e^{-100}$ (b) $1000e^{-100}$ (c) $100e^{-1600}$ **(d) e^{-100}**

Q99. If mean & variance are 5 & 3 respectively then relation between p & q is:

(a) $p > q$ **(b) $p < q$** (c) $p = q$ (d) None

Q100. In a Poisson distribution if $P(x = 4) = P(x = 5)$ then the parameter of Poisson distribution is:

(a) $\frac{4}{5}$ (b) $\frac{5}{4}$ (c) 4 **(d) 5**

Q101. Area between = 1.96 to +1.96 in a normal distribution is:

(a) 95.45% **(b) 95%** (c) 96% (d) 99%

Q102. If the points of inflexion of a normal curve are 40 & 60 respectively, then its mean deviation is:

(a) 8 (b) 45 (c) 50 (d) 60

Dec 2019

Q103. Area under $U \pm 3\sigma$

(a) 99.73% (b) 99% (c) 100% (d) 99.37%

Q104. For a Poisson distribution:

(a) mean & SD are equal

(b) mean & variance are equal

(c) SD & Variance

(d) both a & b

Q105. Find mode, $n = 15$ & $p = \frac{1}{4}$ in binomial distribution?

(a) 4 **(b) 4 & 3** (c) 4.2 (d) 3.75

Q106. In Poisson distribution, if $P(x = 2) = \frac{1}{2}P(x = 3)$ find m?

(a) 3 (b) 1/6 **(c) 6** (d) 1/3

Q107. In a binomial distribution $B(n, p)$ $n = 4P(x = 2) = 3xP(x = 3)$ find P

(a) 1/3 (b) 2/3 (c) 6/4 (d) 4/3

Q108. Find SD & mean x if $f(x) = \frac{\sqrt{2}}{\sqrt{\pi}} e^{-2(x-3)^2}, -\infty < x < \infty$

(a) $3, \frac{1}{2}$ (b) $3, \frac{1}{4}$ (c) $2, \frac{1}{2}$ (d) $2, \sqrt{2}$

Dec 2020

Q109. Which is uni-parametric distribution?

(a) Poisson (b) Normal (c) Binomial (d) None

Q110. If probability of success in a binomial distribution is less than one-half, then binomial distribution _____

(a) is skewed to left (b) is skewed to right

(c) has two modes (d) has median at point > mean +1/2

Q111. If we change the parameter(s) of a _____ distribution sharpe of probability curve does not change.

(a) Normal (b) Binomial (c) Poisson (d) None

Q112. Which one of the following has Poisson distribution?

(a) The number of days to get a complete cure.

(b) The number of defects per meter on long roll of coated polythene sheet.

(c) The errors obtained in repeated measuring of the length of a rod.

(d) The number of claims rejected by an insurance agency.

Q113. Far a Poisson distributed variable X, we have $P(X = 7) = 8P(X = 9)$, the mean of the distribution is:

(a) 3 (b) 4 (c) 7 (d) 9

Q114. The quartile deviation of a normal distribution with mean 10 & standard deviation 4 is _____

(a) 54.24 (b) 23.20 (c) 0.275 **(d) 2.70**

Q115. If the parameter of Poisson distribution is m & (Mean + SD) = 6/25 then find m:

(a) 3/25 **(b) 1/25** (c) 4/25 (d) 3/5

Jan 2021

Q116. A coin with probability for head as $\frac{1}{5}$ is tossed 100 times. The SD of the number of head 5 turned up is.

(a) 3 (b) 2 **(c) 4** (d) 6

Q117. If x is a Poisson variable & $P(x = 1) = P(x = 2)$, then $P(x = 4)$ is

(a) $\frac{2}{3}e^{-2}$ (b) $\frac{2}{3}e^{4}$ (c) $\frac{3}{2}e^{-2}$ (d) $\frac{3}{2}e^{4}$

Q118. Which one of the following is an uniparametric distribution?

(a) Poisson (b) Normal (c) Binomial (d) None

Q119. For a normal distribution, 3rd moment about mean =?

(a) 0 (b) 1 (c) 2 (d) 3

July 2021

Q120. In normal distribution, Mean, Median & Mode are:

(a) Zero (b) Not Equal **(c) Equal** (d) Null

Q121. It is Poisson variate such that $P(x = 1) = 0.7, P(x = 2) = 0.3$, then $P(x = 0) =$

(a) $e^{6/7}$ **(b) $e^{-6/7}$** (c) $e^{-2/3}$ (d) $e^{-1/3}$

Q122. Which of the following diagram is the most appropriate to represents various heads in total cost?

(a) Pie chart (b) Bar graph

(c) Multiple Line chart (d) Scatter Plot

Q123. If x is a binomial variate with P = 1/3, for the experiment of 90 trials, then the SD is equal to:

(a) $\sqrt{5}$ (b) $\sqrt{5}$ **(c) $2\sqrt{5}$** (d) $\sqrt{15}$

Q124. For a certain type of mobile, the length of time between charges of the battery is normally distributed with a mean of 50 hours & a standard deviation of 15 hours. A person owns one of these mobiles & want to know the probability that the length of time will be between 50 & 70 hours is (given $\varphi(1.33)) = 0.9082, \varphi(0) = 0.5$) ?

(a) -0.4082 (b) 0.5 **(c) 0.4082** (d) -0.5

Dec 2021

Q125. Average no. of advertisements per page appearing in a newspaper is 3. What is the probability that in a particular page zero number of advertisements are there?

(a) e^{-3} (b) e^{0} (c) e^{+3} (d) e^{-1}

Q126. Four unbiased coins are tossed simultaneously. The expected number of heads is:

(a) 1 **(b) 2** (c) 3 (d) 4

Q127. If, for a Poisson distributed random variable X, the probability for X taking value 2 is 3 times the probability for X taking value 4, then the variance of X is

(a) 4 (b) 3 **(c) 2** (d) 5

Q128. Let X be normal distribution with mean 2.5 & variance 1. If $PQa < X < 2.5. = 0.4772$ & that cumulative normal probability value at 2 is 0.9772, then a = ?

(a) 0.5 (b) 3 (c) -3.5 (d) -4.5

Q129. The manufacturer of a certain electronic component is certain that 2% of his product is defective. He sells the components in boxes of 120 & guarantees that not more than 2% in any box will be defective. Find the probability that a box, selected at random would fail to meet the guarantee? (Given that $e^{-2.4} = 0.0907$)

(a) 0.49 (b) 0.39 (c) 0.37 **(d) 0.43**

Q130. A renowned hospital usually admits 200 patients every day. One percent patients, on an average, require special room facilities. On one particular morning, it was found that only one special room is available. What is probability that more than 3 patients would require special room facilities?

(a) 0.1428 (b) 0.1732 (c) 0.2235 (d) 0.3450

June 2022

Q131. If Standard Deviation is 1.732 then what is the value of poisson distribution. The $PQ - 2.48 < x < 3.54$. is

(a) 0.73 **(b) 0.65** (c) 0.86 (d) 0.81

Q132. In a normal distribution, variance is 16 then the value of mean deviation is.

(a) 4.2 **(b) 3.2** (c) 4.5 (d) 2.5

Q133. For a binomial distribution, there may be -

(a) One mode (b) Two mode **(c) Multi mode** (d) None

Dec 2022

Q134. Skewness of Normal Distribution is:

(a) Negative (b) Positive **(c) Zero** (d) Undefined

Q135. If a Poisson distribution is such that $P(X = 2) = P(X = 3)$ then the variance of the distribution is:

(a) $\sqrt{3}$ **(b) 3** (c) 6 (d) 9

Q136. The Standard Deviation of Binomial distribution is:

(a) npq **(b) $\sqrt{npq}$** (c) np (d) $\sqrt{np}$

Q137. The speeds of a number of bikes follow a normal distribution model with a mean of 83 km/hr & a standard deviation of 9.4 km. /hr. Find the probability that a bike picked at random is travelling at more than 95 km/hr.? Given $QP(Z > 1.28) = 0.1003$.

(a) 0.1003 (b) 0.38 (c) 0.49 (d) 0.278

June 2023

Q138. The incidence of skin diseases in a chemical plant occurs in such a way that its workers have 20% chance of suffering from it. What is the probability that 6 workers 4 or more will have skin diseases?

(a) 0.1696 **(b) 0.01696** (c) 0.1643 (d) 0.01643

Q139. Between 9 & 10am the average no. of phone calls per minutes coming into the switch board of a company is 4. Find probability that during one particular minute. There will be either two phone calls or no phone calls.

(a) 0.156 **(b) 0.165** (c) 0.149 (d) 0.194

Q140. If a Poisson distribution is such that $P(X = 2) = \frac{1}{3}P(x = 3)$

(a) 4 **(b) 3** (c) 2 (d) 1

LAST 38 EXAMS PYQs

BY CA PRANAV CHANDAK

Correlation & Regression

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Nov 2006

Q1. The coefficient of correlation r between x and y where Cov (x, y) = -16.5, Var (x) = 2.89, Var (y) = 100 is :

(a) -0.97 (b) 0.97 (c) 0.89 (d) -0.89

Q2. Take 200 and 150 respectively as the assumed mean for X and Y series of 11 values, then dx = X - 200, dy = Y - 150, ∑dx = 13, ∑dx2 = 2667, ∑dy = 42, ∑dy2 = 6964, ∑dx dy = 3943. The value of r is:

(a) 0.77 (b) 0.98 **(c) 0.92** (d) 0.82

Q3. For some bivariate data, the following results were obtained for two variables x and y : , $\bar{x}$ = 53.2, $\bar{y}$ = 27.9, byx = -1.5, bxy = -0.2, Most probable value of y when x = 60 is

(a) 15.6 (b) 13.4 (c) 19.7 **(d) 17.7**

Q4. If the sum of squares of the rank difference in mathematics and physics marks of 10 students is 22, then the coefficient of rank correlation is:

(a) 0.267 **(b) 0.867** (c) 0.92 (d) None

Q5. 2 random variables have regression lines 3x + 2y = 26 & 6x + y = 31. Coefficient of correlation between x & y is:

(a) -0.25 (b) 0.5 **(c) -0.5** (d) 0.25

Q6. The coefficient of correlation between X and Y is 0.6. U and V are two variables defined as U = $\frac{x-3}{2}$, V = $\frac{y-2}{3}$, then the coefficient of correlation between U & V is:

(a) 0.6 (b) 0.4 (c) 0.8 (d) 1

Q7. For following data, coefficient of rank correlation is:

Rank in Botany:	1	2	3	4	5
Rank in Chemistry:	2	3	1	5	4

(a) 0.93 (b) 0.4 **(c) 0.6** (d) None

May 2007

Q8. Following data is given, based on 450 students for marks in Statistics & Economics at a certain examination:

Mean marks in Statistics = 40
Mean marks in Economics = 48
S.D. of marks (Statistics) = 12
Variance of marks (Economics) = 256
Sum of the products of deviations of marks from their respective mean = 42075

The average marks in Economics of candidates who obtained 50 marks in Statistics is:

(a) 45 **(b) 54.5** (c) 54 (d) 47.5

Aug 2007

Q9. For 10 pairs of observations, number of concurrent deviations was found to be 4. What is the value of the coefficient of concurrent deviation?

(a) $\sqrt{0.2}$ (b) $^1/_3$ **(c) $^{-1}/_3$** (d) $-\sqrt{0.2}$

Q10. If the covariance between two variables is 20 and the variance of one of the variables is 16, what would be the variance of the other variable?

(a) More than 10 **(b) More than 100**
(c) More than 1.25 (d) Less than 10

Nov 2007

Q11. Assume 69 and 112 as the mean values for X and Y respectively., ∑dx = 47, ∑dx2 = 1475, ∑dy = 108, ∑dy2 = 3468, ∑dx dy = 2116 and N = 8, Where dx = X – 69, dy = Y – 112. Then the value of r is:

(a) 0.95 (b) 0.65 (c) 0.75 (d) 0.85

Q12. In rank correlation, the association need not be linear:

(a) True (b) False
(c) Partly True (d) Partly False

Q13. The lines of regression are as follows: 5x – 145 = - 10y; 14y – 208 = - 8x. The mean values (x, y) is:

(a) (12,5) (b) (5,7) (c) (7, 12) **(d) (5, 12)**

Feb 2008

Q14. Coefficient of rank correlation of marks obtained by 10 students, in English & Economics was found to be 0.5. It was later discovered that the difference in ranks in two subjects obtained by one student was wrongly taken as 3 instead of 7. Correct coefficient of rank correlation is:

(a) 0.32 **(b) 0.26** (c) 0.49 (d) 0.93

Q15. Given the following data: bxy = 0.4 & byx = 1.6. The coefficient of determination is

(a) 0.74 (b) 0.42 (c) 0.58. **(d) 0.64**

Q16. Method applied for deriving regression equations is known as:

(a) Concurrent deviation (b) Product moment
(c) Least squares (d) Normal equation

June 2008

Q17. The coefficient of correlation between x & y series from the following data:

	X series	Y series
Number of pairs of observations	15	15

Arithmetic Mean	25	18
Standard Deviation	3.01	3.03
Sum of the squares of deviation from mean	136	138

Sum of the product of the deviations of x and y series from their respective means = 122, is:

(a) 0.89 (b) 0.99 (c) 0.69 (d) 0.91

Q18. If the lines of regression in a bivariate distribution are given by x + 2y = 5 and 2x + 3y = 8, then the coefficient of correlation is:

(a) 0.866 (b) -0.666 (c) 0.667 **(d) -0.866**

Q19. If the correlation coefficient between two variables is 1, then the two lines of regressions are:

(a) Parallel (b) At right angles

(c) Coincident (d) None of these

Q20. If the sum of square of differences of rank is 50 and number of items is 8 then what is the value of rank correlation coefficient.

(a) 0.59 **(b) 0.40** (c) 0.36 (d) 0.63

Q21. If coefficient of correlation between x and y is 0.46. Find coefficient of correlation between x & $\frac{y}{2}$

(a) 0.46 (b) 0.92 (c) -0.46 (d) -0.92

Q22. Given the regression equations as 3x + y = 13 and 2x + 5y = 20. Find regression equation of y on x.

(a) 3x + y = 13 (b) 2X + y = 20

(c) 3x + 5y = 13 **(d) 2x + 5 y = 20**

Q23. The coefficient of correlation is significant if:

(a) r > 5 P. E (b) r < 6 P. E

(c) r ≥ 6 P. E (d) r = 6P.E

June 2009

Q24. The two regression equations are: $2x + 3y + 18 = 0$, $x + 2y - 25 = 0$, find the value of y if $x = 9$

(a) -8 **(b) 8** (c) -12 (d) 0

Q25. The correlation coefficient between x and y is -1/2. The value of $b_{xy} - 1/8$. Find b_{yx}.

(a) -2 (b) -4 (c) 0 (d) 2

Q26. Ranks of two____. characteristics by two judges are in reverse order then find the value of Spearman rank correlation co-efficient.

(a) -1 (b) 0 (c) 1 (d) 0.75

Dec 2009

Q27. Which regression equations represent regression line of Y on X : $7x + 2y + 15 = 0, 2x + 5y + 10 = 0$

(a) $7x + 2y + 15 = 0$ (b) **$2x + 5y + 10 = 0$**

(c) Both (a) and (b) (d) None of these

Q28. If the rank correlation co-efficient between marks in Management and Mathematics for a group of students is 0.6 and the sum of the squares of the difference in ranks is 66. Then what is the number of students in the group?

(a) 9 **(b) 10** (c) 11 (d) 12

Q29. Correlation coefficient between X & Y is negative when

(a) X and Y are decreasing

(b) X is increasing, Y is decreasing

(c) X and Y are increasing

(d) None of these

Q30. The two regression lines are $7x - 3y - 18 = 0$ and $4x - y - 11 = 0$. Find the values of b_{yx} and b_{xy}

(a) 7/3, ¼ (b) -7/3, -1/4

(c) -3/7, -1/4 (d) None of these.

June 2010

Q31. If 'P' is the simple correlation coefficient, the quantity P^2 is known as:

(a) Coefficient of determination

(b) Coefficient of Non-determination

(c) Coefficient of alienation

(d) None of the above.

Q32. ___ of the regression Coefficients is greater than the correlation coefficient

(a) Combined mean (b) Harmonic mean

(c) Geometric mean **(d) Arithmetic mean**

Q33. If the correlation coefficient between x and y is r, then between $U = \frac{x-5}{10}$ and $V = \frac{y-7}{2}$ is

(a) r (b) -r (c) (r - 5)/2 (d) (r - 7)/10

Q34. If the two lines of regression are $x + 2y - 5 = 0$ and $2x + 3y - 8 = 0$, The regression line of y on x is

(a) $x+2y-5=0$ (b) $2x+3y-8=0$

(c) Any of the two line (d) None of the two lines.

Dec 2010

Q35. If sum of the product of deviations of x & y series from their means is zero, then coefficient of correlation will be

(a) 1 (b) -1 **(c) 0** (d) None

Q36. The ranks of five participants given by two judges are

	Participants				
	A	B	C	D	E
Judge 1	1	2	3	4	5
Judge 2	5	4	3	2	1

Rank correlation coefficient between ranks will be

(a) 1 (b) 0 **(c) -1** (d) 1/2

Q37. Regression coefficient are ___

(a) dependent of change of origin and of scale.

(b) independent of both change of origin and of scale.

(c) dependent of change of origin but not of scale.

(d) independent of change of origin but not of scale

Q38. Given: $\bar{x} = 16, \sigma x = 4.8, \bar{y} = 20, \sigma y = 9.6$

The coefficient of correlation between x and y is 0.6. What will be the regression coefficient of 'x' on 'y'?

(a) 0.03 **(b) 0.3** (c) 0.2 (d) 0.05

Q39. If the two lines of regression are $x+2y-5 = 0$ & $2x+3y-8 = 0$ The regression line of y on x is

(a) $x+2y-5 = 0$ (b) $2x+3y-8 = 0$

(c) Any of the two line (d) None

June 2011

Q40. The covariance between two variables X and Y is 8.4 and their variances are 25 and 36 respectively. Calculate Karl Pearson's coefficient of correlation between them.

(a) 0.82 **(b) 0.28** (c) 0.01 (d) 0.09

Q41. For a bivariate data, two lines of regression are $40x-18y = 214$ & $8x-10y+66 = 0$, then find $\bar{x}$ & $\bar{y}$

(a) 17 & 13 **(b) 13 & 17** (c) 13 & -17 (d) -13 & 17

Q42. Three competitors in a contest are ranked by two judges in the order 1,2,3 and 2,3,1 respectively. Calculate the Spearman's rank correlation coefficient

(a) -0.5 (b) -0.8 (c) 0.5 (d) 0.8

Dec 2011

Q43. Out of the following which one affects the regression co-efficient.

(a) Change of Origin Only **(b) Change of scale Only**

(c) Change of scale & origin both

(d) Neither Change of origin nor change of scale

Q44. For a bivariate data, the lines of regression of Y on X, and of X on Y are respectively $2.5Y-X = 35$ & $10X-Y = 70$, then the Correlation coefficient r is equal to:

(a) 0.2 (b) -0.2 (c) 0.5 (d) -0.5

Q45. If one of regression coefficient is ____ unity, the other must be _____ unity.

(a) more than, more then (b) Less than, Less then

(c) more than, less than (d) Positive, Negative

Q46. If Y is dependent variable and X is Independent variable and the S.D of X and Y are 5 and 8 respectively and Co-efficient of co-relation between X and Y is 0.8. Find the Regression coefficient of Y on X.

(a) 0.78 **(b) 1.28** (c) 6.8 (d) 0.32

June 2012

Q47. If the regression lines are $8x-10y+66 = 0$ & $40x-18y = 214$, the correlation coefficient between 'x' & 'y' is :

(a) 1 **(b) 0.6** (c) -0.6 (d) -1

Q48. Coefficient of correlation between two variables x and y is the simple _____ of the two regression coefficients.

(a) Arithmetic Mean **(b) Geometric Mean**

(c) Harmonic Mean (d) None of the above.

Q49. If 2 variables are uncorrelated, their regression lines are:

(a) Parallel **(b) Perpendicular**

(c) Coincident (d) Inclined at 45 degrees.

Q50. If the covariance between variables X and Y is 25 and variance of X and Y are respectively 36 and 25, then the coefficient of correlation is

(a) 0.409 (b) 0.416 **(c) 0.833** (d) 0.0277

Q51. If $\bar{x}, \bar{y}$ denote the arithmetic means, σ_x, σ_y denotes the standard deviations. b_{xy}, b_{yx} denote the regression coefficients of the variables 'x' & 'y' respectively, then point of intersection of regression lines x on y & y on x is _____.

(a) $(\bar{x}, \bar{y})$ (b) (σ_x, σ_y) (c) (b_{xy}, b_{yx}) (d) (σ_x^2, σ_y^2)

Dec 2012

Q52. In Spearman's Correlation Coefficient, the sum of the differences of ranks between two variables shall be ____

(a) 0 (b) 1 (c) -1 (d) None

Q53. For certain x and y series which are correlated, the two lines of regression are $5x-6y+9 = 0$; $15x-8y-130 = 0$ The correlation coefficient is

(a) 4/5 (b) ¾ **(c) 2/3** (d) 1/2

Q54. The Coefficient of correlation between x and y series is -0.38. The linear relation between x&u and y&v are $3x+5u = 3$ and $-8y-7v = 44$, what is the coefficient of correlation between u&v ?

(a) 0.38 **(b) -0.38** (c) 0.40 (d) None

Q55. If $y = 18x + 5$ is regression line of y on x, b_{xy} =

(a) 5/18 (b) 18 (c) 5 **(d) 1/18**

June 2013

Q56. If 'r' be Karls Pearson's coefficient of correlation in a bivariate distribution then the two regression lines are at right angle if:

(a) $r = \pm 1$ **(b) $r = 0$**

(c) $r = \pm$ any finite value whose numerical value < 1

(d) None

Q57. If the regression equations are $8x - 3y + 50 = 0$ and $14x - 7y - 60 = 0$ and standard deviation of y is 1. The coefficient of correlation is = _____

(a) 2 (b) 1 **(c) 0.87** (d) -0.87

Q58. The coefficient of correlation between two variables x and y is 0.28. Their covariance is 7.6. If the variance of x is 9, then the standard deviation of y is:

(a) 8.048 **(b) 9.048** (c) 10.048 (d) 11.048

Q59. Two variables x and y are related according to $4x + 3y = 7$. Then x and y are:

(a) Positively correlated **(b) Negatively correlated.**

(c) Correlation is zero. (d) None of these.

Dec 2013

Q60. Determine coefficient of correlation between x & y series:

	x Series	y Series
No. of items	15	15
Arithmetic Mean	25	18
Sum of Squares of Deviations from Mean	136	138

Sum of products of Deviations of x & y series from Mean = 122

(a) -0.89 **(b) 0.89** (c) 0.69 (d) -0.69

Q61. Price and Demand is the example for

(a) No correlation (b) Positive correlation

(c) Negative (d) None of the above

Q62. If mean of x and y variables is 20 and 40 respectively and the regression coefficient of y on x is 1.608, then the regression line of y on x is

(a) $y = 1.608x + 7.84$ (b) $y = 1.5x + 4.84$

(c) $y = 1.608x + 4.84$ (d) $y = 1.56x + 7.84$

Q63. When the value of correlation coefficient is +1 or -1, then the two regression lines will ___

(a) have 30° angle between them.

(b) have 45° angle between them.

(c) coincide

(d) be perpendicular to each other

June 2014

Q64. Two regression lines for a bivariate data are: $2x - 5y + 6 = 0$ and $5x - 4y + 3 = 0$. Then the coefficient of correlation should be:

(a) $\frac{-2\sqrt{2}}{5}$ (b) $\frac{2}{5}$ **(c) $\frac{+2\sqrt{2}}{5}$** (d) $\frac{\sqrt{2}}{5}$

Q65. When each individual gets the exactly opposite rank by the two Judges, then the rank correlation will be ____

(a) 0 **(b) -1** (c) +1 (d) $\frac{1}{2}$

Q66. If mean of the two variables 'x' & 'y' are 3 & 1 respectively. Then equation of two regression lines are ___

(a) $5x + 7y - 22 = 0, 6x + 2y - 20 = 0$

(b) $5x + 7y - 22 = 0, 6x + 2y + 20 = 0$

(c) $5x + 7y + 22 = 0, 6x + 2y - 20 = 0$

(d) $5x + 7y + 22 = 0, 6x + 2y + 20 = 0$

Q67. Equation of two lines of regression for 'x' and 'y' are $5x = 22 + y$ and $64x = 24 + 45y$ then the value of regression coefficient of 'y' on 'x' will be _____.

(a) 5 (b) $\frac{1}{5}$ **(c) $\frac{64}{45}$** (d) $\frac{45}{64}$

Dec 2014

Q68. If the correlation coefficient between two variables is zero, then the lines of regression are:

(a) Parallel (b) Perpendicular

(c) Coincide (d) None of these

Q69. If value of correlation coefficient between x & y is 1, then correlation coefficient between $x-2$ & $\frac{-y}{2} + 1$ is:

(a) 1 **(b) -1** (c) -1/2 (d) 1/2

Q70. The equations of two regression lines are $x+y = 6$ and $x+2y = 10$, then the value of correlation coefficient between x and y is:

(a) -1/2 (b) +1/2 (c) $-1/\sqrt{2}$ (d) $+1/\sqrt{2}$

June 2015

Q71. 2 regression lines are $16x - 20y + 132 = 0$, $80x - 36y - 428 = 0$. Value of the correlation coefficient is

(a) 0.6 (b) -0.6 (c) 0.54 (d) 0.45

Q72. When the correlation coefficient r is equal to +1, all the points in a scatter diagram would be
(a) On a straight line directed from upper left to lower right
(b) On a straight line directed from lower left to upper right
(c) On a straight line (d) Both (a) and (b)

Dec 2015

Q73. Out of following which is correct?
(a) $b_{yx} = r\frac{\sigma_x}{\sigma_y}$ **(b) $b_{yx} = r\frac{\sigma_y}{\sigma_x}$**
(c) $b_{yx} = \frac{\pi \cdot \Sigma xy}{\sigma_x}$ (d) $b_{yx} = \frac{\pi \cdot \Sigma xy}{\sigma_y}$

Q74. In case of "Insurance Companies" profits & the number of claims they have to pay there is _____ correlation.
(a) Positive **(b) Negative** (c) No correlation (d) None

June 2016

Q75. Two regression equations are as follows:
Regression equation of x on y: $5x - y = 22$
Regression equation of y on x: $64x - 45y = 24$
What will be the mean of x & y?
(a) $\bar{x} = 8, \bar{y} = 6$ (b) $\bar{x} = 6, \bar{y} = 6$
(c) $\bar{x} = 6, \bar{y} = 8$ (d) $\bar{x} = 8, \bar{y} = 8$

Q76. If the coefficient of correlation between X and Y variables is +0.90 then what will be the coefficient of determination?
(a) 0.30 **(b) 0.81** (c) 0.94 (d) None

Q77. The two lines of regression become identical when
(a) $r = 1$ (b) $r = -1$ (c) $r = 0$ **(d) (a)or(b)**

Q78. If $r = 0.6$, then the coefficient of determination is.
(a) 0.4 (b) -0.6 **(c) 0.36** (d) 0.64

Dec 2016

Q79. The two regression lines passing through
(a) Represent means (b) Represent SDs
(c) (a) and (b) (d) None of these.

Q80. Out of the following the one which effects the regression coefficient is
(a) Change of origin only
(b) Change of scale only
(c) Change of scale and origin both
(d) Neither change in origin nor change of scale

Q81. The regression equation of x on y is $3x + 2y = 100$. The value of b_{xy} is:
(a) $-\frac{2}{3}$ (b) $\frac{100}{3}$ (c) $\frac{3}{2}$ (d) $\frac{2}{3}$

Q82. In a beauty contest there were 10 competitors. Rank of these candidates are assigned by two judges A and B. The sum of squares of differences of ranks is 44. The value of rank correlation is:
(a) 0.70 **(b) 0.73** (c) 0.80 (d) 0.60

June 2017

Q83. The coefficient of correlation between the temperature of environment and power consumption is always:
(a) Positive (b) Negative (c) Zero (d) Equal to 1

Q84. If two regression lines are $x+y = 1$ and $x-y = 1$ then mean values of x and y will be:
(a) 0 & 1 (b) 1 & 1 **(c) 1 & 0** (d) -1 & -1

Q85. Coefficient of correlation between x & y is 0.6. If x & y values -are multiplied by -1, then coefficient of correlation=
(a) 0.6 (b) -0.6 (c) $\frac{1}{0.6}$ (d) $1 - 0.6$

Dec 2017

Q86. If 2 regression lines are $5y = 9x - 22$ & $20x = 9y + 350$, then the value of correlation coefficient (r) will be:
(a) 0.10 (b) -0.10 (c) -0.90 **(d) 0.90**

Q87. Regression coefficient is independent of change of:
(a) Origin (b) Scale
(c) Both (a) and (b) (d) Neither (a) nor (b).

Q88. If $r = 0.6$ then the coefficient of non-determination will be:
(a) 0.40 (b) -0.60 (c) 0.36 **(d) 0.64**

Q89. Correlation coefficient (r) is __ coefficients (b_{yx} & b_{xy})
(a) AM **(b) GM** (c) HM (d) Median

Q90. If there is a constant increase in a series, then the corresponding graph will be
(a) Convex curve (b) Concave curve
(c) Parabola **(d) Straight line from the left to the right**

May 2018

Q91. If the plotted points is a scatter diagram are evenly distributed, then the correlation is
(a) Zero (b) Negative (c) Positive (d) (a)/(b)

Q92. The covariance between two variables is

(a) Strictly positive (b) Strictly negative
(c) Always Zero **(d) Either positive or negative or zero**

Q93. Coefficient of determination is defined by the formula
(a) $r^2 = \frac{1-\text{unexplained variance}}{\text{total variance}}$ (b) $r^2 = \frac{\text{explained variance}}{\text{total variance}}$
(c) both (a) and (b) (d) none

Q94. In the method of Concurrent Deviations, only the directions of change (Positive direction/Negative direction) in the variables are taken into account for calculation of
(a) Coefficient of SD. (b) Coefficient of regression
(c) Coefficient of correlation (d) none

Q95. Correlation coefficient is ___ of units of measurement
(a) dependent **(b) independent**
(c) both (d) none

Q96. In case speed of an automobile and the distance required to stop the car after applying brakes correlation is
(a) Positive **(b) Negative** (c) Zero (d) None

Q97. A relationship $r^2 = 1 - \frac{500}{300}$ is not possible
(a) True (b) False (c) Both (d) None

Q98. Rank correlation coefficient lies between
(a) 0 to 1 **(b) -1 to +1 inclusive of these value**
(c) -1 to 0 (d) both

Nov 2018

Q99. The two line of regression intersect at the point
(a) Mean (b) Mode (c) Median (d) None

Q100. If the two lines of regression are $x+2y-5=0$ and $2x+3y-8=0$, then the regression line of y on x is:
(a) $x+2y-5=0$ (b) $2x+3y-8=0$
(c) $x+2y=0$ (d) $2x+3y=0$

Q101. If the two regression lines are $3X = Y$ and $8Y = 6X$, then the value of correlation coefficient is
(a) 0.5 (b) -0.5 (c) 0.75 (d) -0.80

Q102. Regression coefficient is independent of change of:
(a) Scale **(b) Origin**
(c) Scale and origin both (d) None

Q103. If correlation coefficient between the variables X & Y is 0.5, then correlation coefficient between variables $2x-4$ & $3-2y$ is
(a) 1 (b) 0.5 **(c) -0.5** (d) 0

June 2019

Q104. A.M. of regression coefficients is
(a) Equal to r **(b) Greater than or equal to r**
(c) Half of r (d) None

Q105. Given that

X	-3	-3/2	0	3/2	3
Y	9	9/4	0	9/4	9

Then Karlpearson's coefficient of correlation is
(a) Positive **(b) Zero** (c) Negative (d) None

Q106. Find the probable error if $r = \frac{2}{\sqrt{10}}$ and $n = 36$
(a) 0.6745 **(b) 0.067** (c) 0.5287 (d) None

Q107. Given the following series:

X	10	13	12	15	8	15
Y	12	16	18	16	7	18

The rank correlation coefficient r =
(a) $1 - \frac{6\sum d^2 + \sum_{i-1}^{2} \frac{m_1(m^2-1)}{12}}{n(n^2-1)}$ **(b)** $1 - \frac{\left[\sum d^2 + \sum_{i=i}^{2} \frac{m_1(m_1^2-1)}{12}\right]}{n(n^2-1)}$
(c) $1 - 6\sum d^2 + \sum_{i=1}^{2} \frac{\frac{m_1(m^2-1)}{12}}{n(n^2-1)}$ (d) $1 - 6\sum d^2 + \sum_{i=1}^{3} \frac{\frac{m_1(m^2-1)}{12}}{n(n^2-1)}$

Q108. Determine Spearman's rank correlation coefficient from the given data $\sum d^2 = 30, n = 10$:
(a) $r = 0.82$ (b) $r = 0.32$ (c) $r = 0.40$ (d) None

Q109. If regression line of y on x is given by $y = x + 2$ & Karl Pearson's coefficient of correlation is 0.5 then $\frac{\sigma y^2}{\sigma x^2} =$ ___
(a) 3 (b) 2 **(c) 4** (d) None

Nov 2019

Q110. If two line of regression are $x+2y-5=0$ & $2x+3y-8=0$. So $x+.2y-5=0$ is
(a) y on x (b) x on y (c) both (d) None

Q111. Find coefficient of correlation. 2x+3y=2 & 4x+3y=4
(a) -0.71 **(b) 0.71** (c) -0.5 (d) 0.5

Q112. Find coefficient of correlation of the following data?
x: 1 2 3 4 5
y: 5 4 3 2 6
(a) 0 (b) -0.75 (c) -0.85 (d) 0.82

Q113. If the plotted points in a scatter diagram lie from upper left to lower right, then correlation is
(a) Positive **(b) Negative** (c) Zero (d) None

Nov 2020

Q114. Which of the following is spurious correlation?

(a) Correlation between two variables having no casual relationship

(b) Negative correlation

(c) Bad relation between two variables

(d) Very low correlation between two variables.

Q115. Scatter diagram does not help us to?

(a) Find the type of correlation

(b) Identify whether variables correlated or not

(c) Determine the linear or non-linear correlation

(d) Find the numerical value of correlation coefficient

Q116. The covariance between two variables is

(a) Strictly positive (b) Strictly negative

(c) Always Zero **(d) Either positive or negative or zero.**

Jan 2021

Q117. For set of observations $\{(1,2),(2,5),(3,7),(4,8),(5,10)\}$ value of karl-person's coefficient of correlation is approximately given by

(a) 0.755 (b) 0.655 (c) 0.525 **(d) 0.985**

Q118. The coefficient of correlation between x and y is 0.5 the covariance, is 16, and the standard deviation of y is

(a) 4 **(b) 8** (c) 16 (d) 64

Q119. Interesting point of the two regression lines: y on x and x on y is

(a) (0,0) **(b) $(\bar{x}, \bar{y})$** (c) (b_{yx}, b_{xy}) (d) (1,1)

Q120. Given that the variance of x is equal to the square of standard deviation by and the regression line of y on x is $y = 40 + 0.5(x - 30)$. Then regression line of x on y is

(a) $y = 40 + 4(x - 30)$ (b) $y = 40 + (x - 30)$

(c) $y = 40 + 2(x - 30)$ **(d) $x = 30 + 2(x - 40)$**

Q121. The regression coefficients remain unchanged due to

(a) A shift of scale **(b) A shift of origin**

(c) Replacing x - values by $\frac{1}{x}$ (d) Replacing y values by $\frac{1}{y}$

July 2021

Q122. If $y = 9x$ and $x = 0.01y$ then r is equal to:

(a) -0.1 (b) 0.1 **(c) +0.3** (d) -0.3

Q123. The straight -line graph of the linear equation $y = a + bx$, slope is horizontal if:

(a) $b = 1$ (b) $b \neq 0$ **(c) $b = 0$** (d) $a = b \neq 0$

Q124. If $byx = -1.6$ and $bxy = -0.4$, then r_{xy} will be:

(a) 0.4 **(b) -0.8** (c) 0.64 (d) 0.8

Q125. If the sum of the product of the deviations of X & Y from their means is zero correlation coefficient between X & Y is:

(a) Zero (b) Positive (c) Negative (d) 10.

Q126. If the slope of the regression line is calculated to be 5.5 and the intercept 15 then the value of Y and X is 6 is:

(a) 88 **(b) 48** (c) 18 (d) 78

Q127. The sum of square of any real positive quantities and its reciprocal is never less than:

(a) 4 **(b) 2** (c) 3 (d) 4.

Dec 2021

Q128. If the data points of (X, Y) series on a scatter diagram lie along a straight line that goes downwards as X-values move from left to right, then the data exhibit ___ correlation.

(a) Direct (b) Imperfect indirect.

(c) Indirect (d) Imperfect direct

Q129. For any two variables x and y the regression equations are given as $2x + 5y - 9 = 0$ and $3x - y - 5 = 0$. What are the A.M. of x & y?

(a) 2, 1 (b) 1, 2 (c) 4, 2 (d) 2, 4

Q130. The intersecting point of two regression lines falls at X-axis. If the mean of X-values is 16, the SD of X & Y are respectively, 3 & 4, then the mean of Y-values is

(a) 16/3 (b) 4 **(c) 0** (d) 1

Q131. The regression coefficients remain unchanged due to

(a) Shift of origin (b) Shift of scale

(c) Always (d) Never

June 2022

Q132. If Coefficient of correlation for $3x + 4y = 6$ is 0.5. Find coefficient of correlation for of $3u + 9v = 7$ for u & v.

(a) -(0.5) **(b) +(0.5)** (c) ± 0.5(d) 0.25

Q133. Karl Pearson Correlation Coefficient method is used for -

(a) Any data (b) Scattered data

(c) Grouped data **(d) Ungrouped data**

Q134. If the plotted point in a scatter diagram lie from lower left to upper right then correction is:

(a) Positive (b) Negative

(c) Perfectively negative (d) Zero

Q135. If concurrent coefficient is $\frac{1}{\sqrt{3}}$.If sum of deviation is 6 for n pairs of data?

(a) 9 (b) 8 **(c) 10** (d) 11

Q136. Which of the following is used he find correlation between two qualitative characteristics

(a) Karl Pearson **(b) Spearman rank correlation**
(c) Concurrent deviation (d) Scatter diagram

Q137. Scattered diagram is used the plot

(a) Quantitative data (b) Qualitative data
(c) Discrete data (d) Continuous data

Dec 2022

Q138. The equations of the two lines of regression are $4x + 3y + 7 = 0$ and $3x + 4y + 8 = 0$. Find the correlation coefficient between x and y ?

(a) -0.75 (b) 0.25 (c) -0.92 (d) 1.25

Q139. The regression equations are $2x + 3y + 1 = 0$ and $5x + 6y + 1 = 0$, then Mean of x and y respectively are:

(a) -1, -1 (b) -1, 1 **(c) 1, -1** (d) 2, 3

Q140. If $b_{yx} = 0.5$, $b_{xy} = 0.46$ then the value of correlation coefficient r is:

(a) 0.23 (b) 0.25 (c) 0.39 **(d) 0.48**

Q141. The coefficient of rank correlation between the ranking of following 6 students in two subjects Mathematics and Statistics is:

Mathematics	3	5	8	4	7	10
Statistics	6	4	9	8	1	2

(a) 0.25 (b) 0.35 (c) 0.38 (d) 0.20

Q142. Pearson's Correlation coefficient between x and y is:-

(a) $\frac{cov\,(x,y)}{S_x S_y}$ (b) $\frac{cov^2\,(x,y)}{S_x S_y}$ (c) $\frac{S_x S_y)^2}{cov\,(x,y)}$ (d) $\frac{S_x S_y}{cov\,(x,y)}$

June 2023

Q143. Given that ₹ $= 0.4$ and $n = 81$ determine the units for the population evaluation coefficient.

(a) (0.33,0.466) (b) (0.367,0.433)
(c) $(0.337, 0.463)$ (d) (0.373,0.427)

Q144. Spearman rank correlation coefficient Y_R is given by

(a) $1 - \frac{6\sum d1^2}{n(n^2+1)}$ (b) $1 + \frac{\sum d1^2}{n(n^2-1)}$
(c) $1 + \frac{6\sum d1^2}{n(n^2+1)}$ **(d)** $1 - \frac{6\sum d1^2}{n(n^2-1)}$

Q145. If the regression equations are $x+2y-5=0$ & $2x+3y-8=0$ then the r, x & the mean of y are _____ respectively.

(a) -3 & 4 (b) -2 & 4 **(c) 1 & 2** (d) 2 & 1

Q146. The regression lines will be perpendicular to each other when the value of r is

(a) 1 (b) -1 (c) ½ **(d) 0**

Q147. For variables X and Y for a set of four observation, $X = 10, Y = 14$, $X^2 = 65$ $Y^2 = 99$ and $XY = 3$,then the regression line on Y on X is:

(a) $Y = -0.8X - 5.5$ (b) $Y = 0.8X - 5.5$
(c) $Y = -0.8X + 5.5$ (d) $Y = 0.8X + 5.5$

LAST 38 EXAMS PYQs

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Nov 2006

Q1. The number of test of Adequacy is :

(a) 2 (b) 3 **(c) 4** (d) 5

Q2. Consumer price index for 2006 on the basis of 2005 from the following data is

	Quantities consumed in 2005	Price in 2005	Prices in 2006
A	6	5.75	6.00
B	6	5.00	8.00
C	1	6.00	9.00
D	6	8.00	10.00
E	4	2.00	1.50
F	1	20.00	15.00

(a) 128.77 (b) 108.77 (c) 138.77 **(d) 118.77**

Q3. Suppose a business executive was earning Rs. 2,050 in the base period, what should be his salary in the current period if his standard of living is to remain the same? Given $\sum W = 25$ and $\sum IW = 3544$:

(a) Rs. 2096 **(b) Rs.2906** (c) Rs. 2106 (d) Rs. 2306

Feb 2007

Q4. Bowley's index number is expressed in terms of:

(a) $\frac{\text{Laspeyre's} + \text{Paasche's}}{2}$ (b) $\frac{\text{Laspeyre's} \times \text{Paasche's}}{2}$

(c) $\frac{\text{Laspeyre's} - \text{Paasche's}}{2}$ (d) None

Q5. Fisher's ideal formula for calculating index number satisfies the ____ :

(a) Unit Test (b) Factor Reversal Test

(c) Both (a) & (b) (d) None of these

Q6. Calculate Fisher ideal index from the following data:

Price (Rs.)	Quantity ('000 kg.)			
Commodity	2004	2005	2004	2005
Rice	9.3	4.5	100	90
Wheat	6.4	3.7	11	10
Pulse	5.1	2.7	5	3

(a) 49.13 (b) 48.13 (c) 84.13 (d) 46.12

May 2007

Q7. Circular Test is satisfied by :

(a) Paasche's Index Number.

(b) The simple geometric mean of price relatives and the weighted aggregative with fixed weights

(c) Laspeyre's Index Number (d) None

Q8. From the following data :

Group:	A	B	C	D	E	F
Group Index :	120	132	98	115	108	95
Weight:	6	3	4	2	1	4

The general index is given by :

(a) 113.54 (b) 115.30 (c) 117.92 **(d) 111.30**

Aug 2007

Q9. Cost of living index numbers are also used to find real wages by the process of:

(a) Base shifting (b) Splicing of index numbers

(c) Deflating of index numbers (d) None

Q10. The prices of a commodity in the year 1975 and 1980 were 25 and 30 respectively. Taking 1980 as the base year the price relative is:

(a) 113.25 **(b) 83.33** (c) 109.78 (d) None

Q11. From the following data:

Base Year		Current Year		
Commodity	Price	Quantity	Price	Quantity
A	7	17	13	25
B	6	23	7	25
C	11	14	13	15
D	4	10	8	8

The Marshal Edgeworth index number is:

(a) 144.19 (b) 143.91 (c) 4900 (d) 140.31

Nov 2007

Q12. Net monthly salary of an employee was Rs. 3,000 in 1980. The consumer price index number in 1985 is 250 with 1980 as base year. If he has to be rightly compensated, then the Dearness Allowance to be paid to the employee is:

(a) Rs. 4,200 **(b) Rs. 4,500** (c) Rs. 4,900 (d) Rs. 7,500

Q13. P10 is the index for time:

(a) 0 on 1 (b) 1 on 0 (c) 1 on 1 (d) 0 on 0

Feb 2008

Q14. An enquiry into the budgets of middle-class families in a village gave the following information:

Expenses on:	Food	Rent	Clothing	Fuel	Others
	30%	15%	20%	10%	25%
Price in Rs. in 1987:	100	20	70	20	40
Price in Rs. in 2005:	90	20	60	10	55

$\sum PW$ = 10101.5, $\sum W \log P$ = 199.494. The price index number based on Weighted Arithmetic Mean of price relatives is:

(a) 111.015 **(b) 101.015** (c) 0.0197 (d) None

Q15. Shifted Price index

$$= \frac{\text{Original Price Index}}{\text{Price index of the year on which it has to be shifted}} \times 100$$

(a) True (b) False

(c) Partly True (d) Partly False

Q16. Given the following information :

Commodity	2000		2003	
	Price	Quantity	price	Quantity
A	2	74	3	82
B	5	125	4	140
C	7	40	6	33

Which of the following is true :

(a) Marshall Edgeworth index for 2003 is 105.13

(b) Fisher's index for 2003 is 90.15.

(c) Marshall Edgeworth Index Number is good approximation to Fisher's Index Number

(d) None

June 2008

Q17. Laspeyres's & Paasche's Method __ Time Reversal Test:

(a) Do not satisfy (b) Satisfy

(c) Depends on the case (d) Can't say.

Q18. Chain index is equal to :

(a) $\frac{\text{link relative of current year} \times \text{chain index of the current year}}{100}$

(b) $\frac{\text{link relative of current year} \times \text{chain index of the previous year}}{100}$

(c) $\frac{\text{link relative of previous year} \times \text{chain index of the current year}}{100}$

(d) None

Q19. In 2004 for working class people wheat was selling at an average price of Rs. 16 per 20 kg, cloth at Rs. 2 per meter, house rent Rs. 30 per house and other items at Rs. 10 per unit By 2005 cost of wheat rose by Rs. 4 per 20 Kg, house rent by Rs. 15 per house and other items doubled in price. The working-class cost of living index for the year 2005 (with 2004 as base) was 160. By how much did cloth rose in price during the period:

(a) 1.28 (b) 0.99 (c) 1.73 **(d) 1.30**

Q20. The ratio of price of the single commodity in a given period to its price in another period is called :

(a) Price Ratio **(b) Price Relative**

(c) Base Period (d) None of these

Dec 2008

Q21. Consumer Price Index Number goes up from 100 to 200 and salary of a worker is also raised from 300 to 500

(a) 300 **(b) 250** (c) 600 (d) 350

Q22. Using following data, find Paasche's Index Number

Base Year		Current Year		
Commodities	Price	Quantity	Price	Quantity
A	5	25	6	30
B	3	8	4	10
C	2	10	3	8
D	10	4	3	5

(a) 109.21 **(b) 105.28** (c) 110.32 (d) 120.21

Q23. The Circular Test is known as :

(a) $P_{01} \times P_{12} \times P_{20} = 1$ (b) $P_{12} \times P_{01} P20 = 1$

(c) $P_{20} \times P_{12} P_{01} = 1$ (d) $P_{02} \times P_{21} P_{12} = 1$

June 2009

Q24. Fisher's Index is based on :-

(a) Arithmetic Mean of Laspeyre and Paasche

(b) Geometric Mean of Laspeyre and Paasche

(c) Harmonic Mean of Laspeyre and Paasche

(d) Median of Laspeyre and Paasche.

Q25. In Passche's index, weights are based on :

(a) Current year quantities (b) Base year quantities

(c) Weighted average prices (d) None

Q26. Fisher's Ideal Index does not satisfy:

(a) Time Reversal Test (b) Factor Reversal Test

(c) Unit Test **(d) Circular test**

Q27. $\_\_P_{01}Q_{01} = \frac{\Sigma P_1 Q_1}{\Sigma P_0 Q_0}$ which of following test satisfies the above?

(a) Time Reversal Test **(b) Factor Reversal Test**

(c) Circular Test (d) None

Dec 2009

Q28. Time reversal & factor reversal are:

(a) Quantity Index (b) Ideal Index

(c) Price Index **(d) Test of Consistency**

Q29. In Laspeyre's Index Number _____ are used as weights?

(a) Base year price (b) Current year price

(c) Base year quantities (d) Current year quantities

June 2010

Q30. In data group Bowley's and Laspeyre's index number is as follows. Bowley's index number = 150, Lspeyre's index number = 180 then Paesche's index number is

(a) 120 (b) 30 (c) 165 (d) None

Q31. Consumer price index is commonly known as

(a) Chain Based index (b) Ideal index

(c) Wholesale price index **(d) Cost of living index.**

Q32. Find the paasche's index number for prices from the following data taking 1970 as the base year.

Commodity	1970		1975	
	Price	Commodity	Price	Commodity
A	1	6	3	5
B	3	5	8	5
C	4	8	10	6

(a) 261.36 (b) 265.48 (c) 274.32 (d) 282

Dec 2010

Q33. If Laspeyre's index number is 90 and Paasche's index number is 160, then Fisher's index number will _____

(a) 144 **(b) 120** (c) 125 (d) None

June 2011

Q34. Wholesale Price Index (WPI) is given by :

(a) Marshall-Edge worth Index **(b) Laspeyre's Index**

(c) Paasche's Index (d) None

Q35. Fisher's Ideal index is obtained by :

(a) Arithmetic Mean of Laspeyre's & Paasche's index

(b) Geometric Mean of Laspeyre's & Paasche's index

(c) Sum of Laspeyre's & Paasche's index.

(d) None of the above.

Q36. The index number of prices at a place in the year 2008 is 225 with 2004 as the base year then there is:

(a) average 125% increase in prices.

(b) average 225% increase in prices.

(c) average 100% increase in prices. (d) None

Nov 2011

Q37. The simple index number for the current year using simple aggregative method for the following data is _____

Commodity	Year	Current year
Base	Price	price
	(P0)	(P1)
Wheat	80	100
Rice	100	150
Gram	120	250
Pulses	200	300

(a) 200 (b) 150 (c) 240 **(d) 160**

Q38. Fishers Ideal Index Number not satisfies_

(a) Unit Test (b) Time Reversal Test

(c) Circular Test (d) Factor Reversal Test

Q39. If the prices of all commodities in a place has increased 20% in comparison to the base period prices, then the index number of prices for the place is now _____.

(a) 100 **(b) 120** (c) 20 (d) 150

June 2012

Q40. If $\Sigma P_0Q_0 = 116$, $\Sigma P_0Q_1 = 140$, $\Sigma P_1Q_0 = 97$, $\Sigma P_1Q_1 = 117$, then Fisher's ideal index number is __

(a) 184 **(b) 83.59** (c) 119.66 (d) 120

Q41. Find the Paasche's Index number for prices from the following data taking 1970 as the base year.

Commodity	1970		1975	
	Price	Commodity	price	Commodity
A	1	6	3	5
B	3	5	8	5
C	4	8	10	6

(a) 261.36 (b) 265.48 (c) 274.32 (d) 282

Dec 2012

Q42. If Fisher's index = 150 and Paasche's index = 144, then Laspeyre's index is ____

(a) 147 **(b) 156.25** (c) 104.17 (d) 138

Q43. Net monthly salary of an employee was ₹ 3,000. The consumer price index number in 1985 is 250 with 1980 as base year. If he has to be rightly compensated then additional dearness allowance to be paid to employee is:

(a) ₹ 4,000 (b) ₹ 4,800 (c) ₹ 5,500 **(d) ₹ 4,500**

June 2013

Q44. In year 2005 the wholesale price index number is 286 with 1995 as base year, then how much the prices have increased in 2005 in comparison to 1995?

(a) 286% (b) 386% (c) 86% **(d) 186%**

Q45. Bowley's index = 150, Laspeyer's index = 180, then Paasche's index = ____

(a) 120 (b) 30 (c) 165 (d) None

Dec 2013

Q46. An index time series is a list of number of _____ two or more period of time, where each index number employs the same base y can

(a) Index (b) Absolute (c) Relative (d) Sample

Q47. The index number for the year 2012 taking 2011 as the base year from the data given below by using simple average of price relative method is.

Commodity	A	B	C	D	E
Price in 2011	115	108	95	80	90
Price in 2012	125	117	108	95	95

(a) 112 (b) 117 (c) 120 **(d) 111**

Q48. What is the formula for calculating the deflated value?

(a) Current value/Price index of current year

(b) (Current value/Price index of current year) × 100

(c) Price index of current year/Current value

(d) (Current value/Price index of last year) × 100

June 2014

Q49. Circular test is satisfied by which index number?

(a) Laspeyre's (b) Paasche's (c) Fisher's **(d) None**

Q50. Fisher's Index Number is __ of Laspeyre's and Paasche's Index Number

(a) A.M. **(b) G.M.** (c) H.M. (d) None

Q51. Which of the following statements is true?

(a) Paasche's Index Number is based on base year quantity

(b) Fisher's Index Number satisfies the circular test

(c) Arithmetic Mean is the most appropriate average for constructing the Index Number

(d) Splicing means constructing one continuous series from two different indices on the basis of common base.

Q52. Monthly salary of an employee was ₹ 10,000 in the year 2000 and it was increased to ₹ 20,000 in year 2013 while the consumer price Index No. is 240 in year 2013 with the base year 2000. What should be his salary in comparison of consumer price index in the year 2013?

(a) ₹ 20,000 (b) ₹ 16,000 **(c) ₹ 24,000** (d) None

Dec 2014

Q53. If $\Sigma P_1Q_0 = 1180, \Sigma P_0Q_0 = 1170, \Sigma P_1Q_1 = 1064, \Sigma P_0Q_1 = 1100$. The Fisher's Ideal Index is:

(a) 96.73 (b) 98.795 **(c) 98.77** (d) 100.86

Q54. If price of a commodity in a place has decreased by 30% over base period prices, then index number of the place is:

(a) 30 (b) 60 **(c) 70** (d) 80

June 2015

Q55. If with an increase of 10% in prices, the rise in wages is 20% then the real wage has increased by

(a) 20% (b) 10%

(c) Less than 10% (d) More than 10%

Q56. _____ play a very important role in the construction of index numbers.

(a) Weights (b) Classes (c) Estimations (d) None

Dec 2015

Q57. Consumer price index number for the year 1977, was 313, with 1960 as the base year, and was 100 for the year 1960. The average monthly wages in 1977 of the workers into factory be ₹ 160, their real wages is:

(a) ₹ 48.40 **(b) ₹ 51.12** (c) ₹ 40.30 (d) None

June 2016

Q58. Purchasing power of money is

(a) Reciprocal of price index number

(b) Equal to price index number

(c) Unequal to price index number

(d) None

Q59. $\Sigma P_0Q_0 = 1360, \Sigma P_nQ_0 = 1900, \Sigma P_0Q_n = 1344, \Sigma P_nQ_n = 1880$, then the Laspeyre's Index Number is

(a) 0.71 **(b) 1.39** (c) 1.76 (d) none.

Q60. In the year 2010 the monthly salary of a clerk was ₹ 24,000. The consumer price Index was 140 in the year 2010, which rises to 224 in the year 2016. If he has to be rightly compensated, what additional monthly salary should be paid to him?

(a) ₹ 14,400 (b) ₹ 38,400 (c) ₹ 7,200 (d) None

Q61. The suitable index number for the comparison of changes in price level of every year is __

(a) Fixed Base Index Number

(b) Fisher's Ideal Index Number

(c) Chain Base Index Number

(d) Both (a) and (c)

Dec 2016

Q62. Following is the data concerning to commodities A, B, C and D in the base period 1992 and current period 1993

	Base Year 1992		Current Year 1993	
Cornmodities	Price	Quantity	Price	Quantity
A	3	18	4	15
B	5	6	5	9
C	4	20	6	26
D	1	14	3	15

The Paasche's price index number is:

(a) 148.25 **(b) 146.41** (c) 144.25 (d) None

Q63. Which method satisfy time reversal test?

(a) Laspeyer's method (b) Paasche's method

(c) Fishers method (d) None

Q64. Index number are the _____

(a) Economic (b) Statistics **(c) (a) and (b)** (d) None

June 2017

Q65. The monthly income of an employee was ₹ 8,000 in 2014. The consumer price index number was 160 in 2014, which rose to 200 in 2017. If he has to be rightly compensated, the additional dearness allowance to be paid to him in 2017 would be:

(a) ₹ 2,400 (b) ₹ 2,750 (c) ₹ 2,500 **(d) None**

Q66. If Laspeyre's index number (L) and Paasche's index number (P) are known, then one can compute Fisher's index number (F) by:

(a) $F = LP$ (b) $\sqrt{F} = LP$ (c) $F = \frac{1}{LP}$ **(d) $F^2 = LP$**

Q67. Fisher's index number does not satisfy:

(a) Unit Test **(b) Circular Test**

(c) Time reversal test (d) Factor reversal test.

Dec 2017

Q68. Circular Test is an extension of ___

(a) Factor reversal test **(b) Time reversal test**

(c) Neither (a) nor (b) (d) Both (a) and (b).

Q69. Fishers index number is based on:

(a) The AM of Laspeyre's and Paasche's index numbers

(b) The median of Laspeyre's and Paasche's index numbers.

(c) The mode of Laspeyre's and Paasche's index numbers

(d) None of the above.

Q70. Price relative is equal to:

(a) $\frac{\text{Price in the given year}}{\text{Price in the base year}} \times 100$ (b) $\frac{\text{Price in the base year}}{\text{Price in the given year}} \times 100$

(c) Price in given year × 100 (d) Price in base year × 100.

Q71. For consumer price index, prices are collected from:

(a) Retail traders (b) Wholesale traders

(c) Fair price shops (d) Government Depots.

May 2018

Q72. Time reversal & factor reversal are:

(a) Quantity Index (b) Ideal Index

(c) Price Index **(d) Test of consistency**

Q73. A series of numerical figures which show the relative position is called.

(a) Index number (b) Relative number

(c) Absolute number (d) None

Q74. The number of test of Adequacy is:

(a) 2 (b) 5 (c) 3 **(d) 4**

Q75. P_{01} is the index for time

(a) 1 on 0 (b) 0 on 1 (c) 1 on 1 (d) 0 on 0

Q76. The circular test is an extension of

(a) The time is reversal test (b) The factor reversal test

(c) The unit test (d) None of these.

Q77. Same as Q59. (June 2016)

Q78. Price -relative is expressed in term of

(a) $P = \frac{P_n}{P_0}$ (b) $P = \frac{P_0}{P_n}$

(c) $P = \frac{P_n}{P_0} \times 100$ (d) $P = \frac{P_0}{P_n} \times 100$

Q79. Circular test is satisfied by

(a) Laspeyre's Index Number (b) Paasche's Index Number

(c) The simple geometric mean of price relatives and the weighted aggregative with fixed weights.

(d) None

Q80. If 1970 index with base 1965 is 200 & 1965 index with base 1960 is 150, what will be index of 1970 on base 1960 ?

(a) 700 **(b) 300** (c) 500 (d) 600

Q81. The multiplicative time series model is

(a) $y = T + S + C + 1$ **(b) $y = TSCI$**

(c) $y = a + bx$ (d) $y = a + bx + cx^2$

Nov 2018

Q82. Which of the following statement is true?

(a) Paasche's Index Number is based on the base year quantity

(b) Fisher's Index Number is the Arithmetic Mean of Laspreyre's Index Number and Paasche's Index number

(c) Arithmetic Mean is the most appropriate average for constructing the index number

(d) Fisher's Index Number is an Ideal Index Number

Q83. If Laspeyre's Index Number is 250 & Paache's Index Number is 160, then Fisher's Index Number is

(a) 40,000 (b) $\frac{25}{16}$ **(c) 200** (d) $\frac{16}{25}$

Q84. The simple average method is used to calculate

(a) Trend Variation (b) Cyclical Variation

(c) Seasonal Variation (d) Irregular Variation

Q85. If $\Sigma p_0 q_0 = 240, \Sigma p_1 q_1 = 480, \Sigma p_1 q_0 = 600$ and $\Sigma p_0 q_1 = 192$, then Laspeyre's Index Number is

(a) 250 (b) 300 (c) 350 (d) 200

Q86. The sale of Cold Drink would go up in summers and go down in the winters is an example of

(a) Trend Variation (b) Cyclical Variation

(c) Seasonal Variation (d) Irregular Variation

June 2019

Q87. Which is called an ideal index numbers

(a) Laspeyre's index number

(b) Pasche's index number

(c) Fisher's index number

(d) Marshall Edgeworth index number

Q88. In semi averages method, if the number of values is odd then we drop:

(a) First value (b) Last value

(c) Middle value (d) Middle two value

Q89. Which is not satisfied by Fisher's ideal index number?

(a) Factor Reversal Test (b) Time Reversal Test

(c) Circular Test (d) None

Q90. The prices and quantities of 3 commodities in base and current years are as follows:

p_0	p_1	q_0	q_1
12	14	10	20
10	8	20	30
8	10	30	10

The Laspeyre price index is

(a) 118.13 **(b) 107.14** (c) 120.10 (d) None

Q91. The cost-of-living index numbers in years 2015 and 2018 were 97.5 and 115 respectively. The salary of a worker in 2015 was ₹ 19500. How much additional salary was required for him in 2018 to maintain some standard of living as in 2015?

(a) 3000 (b) 4000 **(c) 3500** (d) 4500

Q92. Trend in semi averages is:

(a) Linear (b) Parabola (c) Exponential (d) None

Q93. The most commonly used mathematical method for finding secular trend is

(a) Moving average **(b) Simple average**

(c) Exponential (d) None

Nov 2019

Q94. When sale of cold drink increases in summer and decreases in winters is an example of?

(a) Seasonal variations (b) Cyclic variations

(c) Secular trend (d) None

Q95. Seasonal Variations take place within:

(a) one year (b) two year

(c) half year (d) five years

Q96. Fisher's index number does not satisfy:

(a) Circular test (b) Time reversal test

(c) Factor reversal test (d) Unit test

Q97. The index number of prices at place in the year 2008 is 225 with 2004 as the base then there is:

(a) 125% increase (b) 225% increase

(c) 100% increase (d) 25% decrease

Q98. In semi-average method if the no. of values is odd, we exclude:

(a) First value (b) Last value

(c) Middle value (d) None.

Nov 2020

Q99. Fisher's ideal Index Number does not satisfy ___ test

(a) Circular (b) Time reversal

(c) Factor Reversal (d) Unit

Q100. Index Numbers are expressed as

(a) Squares (b) Ratio

(c) Percentages (d) Combinations

Q101. In Laspeyre's index number is 110 and Fisher's ideal index number is 109. Then Paasche's index number is

(a) 118 (b) 110 (c) 109 **(d) 108**

Jan 2021

Q102. The cost-of-living index is always

(a) Price index number (b) Quantity index number

(c) Weighted index number (d) Value index number

Q103. Fisher's index number does not satisfy

(a) Unit test **(b) Circular test**

(c) Time reversal test (d) Factor reversal test

Q104. When the prices for quantities consumed of all commodities are changing in the same ratio, then the index numbers due to Laspeyre's and Paasche's will be.

(a) Equal (b) Unequal

(c) Reciprocal of Marshall Edge worth Index Number

(d) Reciprocal of Fisher Index Number

July 2021

Q105. The weighted aggregative price index turnover for 2001 with 2000 as base year using Fisher's Index Number is:

Commodity	Price (In ₹)		Quantities	
	2000	2001	2000	2001
A	10	12	20	22
B	8	8	16	18
C	5	6	10	11
D	4	4	7	8

(a) 12.26 **(b) 112.25** (c) 112.32 (d) 126.01

Q106. The weighted aggregative price index numbers for 2001 with 2000 as the base year using Paasche's index number is :

Commodity	Price (In ₹)		Quantities	
	2000	2001	2000	2001
A	10	12	20	22
B	8	8	16	18
C	5	6	10	11
D	4	4	7	8

(a) 112.32 (b) 112.38 (c) 112.26 **(d) 112.20**

Q107. If in an additive model O refers to original data as 875, T refers to trend 700, S refers to seasonal variations −200, C refers to cyclical variations 75 then the value of I which refers to irregular variation is:

(a) -100 (b) -170 (c) -140 (d) -150

Q108. The weighted aggregative price index numbers for 2001 with 2000 as the base year using Marshall Edgeworth index number is:

Commodity	Price in (₹)		Quantities	
	2000	2001	2000	2001
A	10	12	20	22
B	8	8	16	18
C	5	6	10	11
D	4	4	7	8

(a) 112.26 (b) 112.20 (c) 112.32 (d) 112.38

Q109. The consumer price index goes up from 120 to 180 when salary goes up from 240 to 540, what is the increase in real terms?

(a) 80 (b) 150 **(c) 360** (d) 240

Dec 2021

Q110. If P_{10} and P_{01} are index for 1 on 0 and 0 on 1 respectively then formula $P_{01} \times P_{10} = 1$ is used for

(a) Unit Test **(b) Time Reversal Test**

(c) Factor Reversal Test (d) Circular Test

Q111. The weighted averaged of price relatives of commodities, when the weights are equal to the value of commodities in the current year, yields _____index number.

(a) Fisher's ideal (b) Laspeyres's

(c) Paasches' (d) Marshall-Edgeworth

Q112. From the following data base year:

Commodity	Base year		Current year	
	Price	Quantity	Price	Quantity
A	4	3	6	2
B	5	4	6	4
C	7	2	9	2
D	2	3	1	5

Fisher's Ideal Index is

(a) 117.30 (b) 115.43 (c) 118.35 (d) 116.48

Q113. Index numbers are not helpful in

(a) Framing economics policies (b) Revealing trend

(c) Forecasting **(d) Identifying errors**

Q114. The three index numbers, namely, Laspeyre, Paasche and Fisher do not satisfy _____ test.

(a) Time reversal (b) Factor reversal

(c) Unit **(d) Circular**

June 2022

Q115. Geometric mean method used in which index number to find it out

(a) Laspeyres (b) Paasches
(c) Fishers index Number (d) None

Q116. Which test is known for shift base index no.

(a) Factor test (b) Unit test
(c) Circular test (d) Time revesral test

Q117. Laspeyres and Paasche do not satisfy -

(a) Unit Test (b) Factor Test
(c) Time Reversal Test (d) Bowley's Test

Q118. Laspeyres's index number is based on?

(a) Last year weight (b) Present year weight
(c) Last year value (d) Present year value

Q119. Price relative is-

(a) $\frac{P_1}{P_0} \times 100$ (b) P (c) P_0 (d) $\frac{P_1}{P_0}$

Q120. Which one of the following is not appropriate for calculation of index number?

(a) Unit Test **(b) Price Relative Test**
(c) Circular Test (d) Time Reversal Test

Dec 2022

Q121. Construct the Index number by Laspeyre's method $P_1Q_1 = 99, P_0Q_1 = 76, P_0Q_0 = 73, P_1Q_0 = 96$

(a) 130.36 **(b) 131.51** (c) 130.59 (d) 76.01

Q122. Which of the following index measures the change from month to month in the cost of a representative basket of goods and services of the type which are bought by a typical household?

(a) Retail Price Index (b) Laspeyre's Index
(c) Fisher's Index (d) Paasche's Index

Q123. Fisher's Index number is called as ideal index number because it is satisfying.

(a) Factor reversal test (b) Time reversal test
(c) Both factor and time reversal test
(d) Circular test

Q124. If Laspeyre's Index is 119 and Paasche's Index is 112. Then Fisher's index number will be:

(a) 113.99 **(b) 115.45** (c) 115.89 (d) 151.98

Q125. In price index, when a new commodity is required to be added, which of the following index is used?

(a) Shifted price index (b) Splicing price index
(c) Deflating price index (d) Value price index

June 2023

Q126. Consider the data

Year	Base Year		Current Year	
	Price	Quantity	Price	Quantity
A	10	5	20	2
B	15	4	25	8
C	40	2	60	6
D	25	3	40	4

Laspeyre's Index is:

(a) 166.04 (b) 156.04 (c) 164.06 (d) 154.06

Q127. Which of the following index is computed taking the average of base year and current year?

(a) Marshall- Edgeworth's index (b) Paasche's index
(c) Laspeyre's Index (d) Fisher's index

Q128. The Index number of prices for a country at a given date in 250. In comparison to the base period price the price of all commodities in the country has increase by ___times.

(a) 1.25 **(b) 1.5** (c) 2 (d) 2.5

Q129. If Fisher's index number is 160 and paasche's index number is 140 laspeyre's Index 40 is :

(a) 187.77 **(b) 182.86** (c) 183.25 (d) 186.25

Q130. Weighted guarantee means of relative formula satisfies ____ test while as factor reversal test is satisfied by_.

(a) Time reversal Fisher's Ideal index
(b) Time reversal Laspeyre's Index
(c) Factor reversal Paasche's index
(d) Factor reversal Fisher's ideal index