

PAPER – 3: QUANTITATIVE APTITUDE



QUESTIONS

1. If arithmetic mean between roots of a quadratic equation is 8 and the geometric mean between them is 5, the equation is _____
 - (a) $x^2 - 16x - 25 = 0$
 - (b) $x^2 - 16x + 25 = 0$
 - (c) $x^2 - 16x + 25 = 0$
 - (d) None of these
2. Roots of equation $2x^2 + 3x + 7 = 0$ are α and β . The value of $\alpha\beta^{-1} + \beta\alpha^{-1}$ is
 - (a) 2
 - (b) $3/7$
 - (c) $7/2$
 - (d) $-19/14$
3. 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

4. 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
5. A sum of money doubles itself in 10 years. The number of years it would treble itself is:
 - (a) 25 years
 - (b) 15 years
 - (c) 20 years
 - (d) None
6. The effective rate equivalent to nominal rate of 6% compounded monthly is:
 - (a) 6.05
 - (b) 6.16
 - (c) 6.26
 - (d) 6.07
7. What is the rate of simple interest if a sum of money amounts to Rs. 2,784 in 4 years and Rs. 2,688 in 3 years?
 - (a) 1% p.a.
 - (b) 4% p.a.
 - (c) 5% p.a.
 - (d) 8% p.a.
8. A building contractor needs three helpers and ten men apply. In how many ways can these selections take place?
 - (a) 36
 - (b) 15

- (c) 150
- (d) 120
9. 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
10. If $A = (1,2,3,4,5)$, $B = (2,4)$ and $C = (1,3,5)$ then $(A-C) \times B$ 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) $(2,2), (2,4), (4,2), (4,4)$
11. If $f : \mathbb{R} \rightarrow \mathbb{R}$ 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) $\frac{x-7}{10}$

12. $\lim_{n \rightarrow \infty} \left(\frac{1}{3} + \frac{1}{3^2} + \frac{1}{3^3} + \dots + \frac{1}{3^n} \right)$ is equal to :
- (a) $\frac{1}{2}$
- (b) $\frac{1}{3}$
- (c) 2
- (d) 1
13. The function $f(x) = \frac{x^2 - 9}{x - 3}$ is undefined at $x = 3$. What value must be assigned to $f(3)$, if $f(x)$ is to be continuous at $x = 3$?
- (a) 6
- (b) 0
- (c) 9
- (d) 3
14. 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
15. $\int_1^2 \frac{2x}{1+x^2} dx$:
- (a) $\log_e \frac{5}{2}$
- (b) $\log_e 5 - \log_e 2 + 1$
- (c) $\log_e \frac{2}{5}$

- (d) None of these
16. In certain code language 'CLOCK' is coded as 75276 and 'EARTH' is coded as 83491, then 'COAT' is coded as
- (a) 7329
 - (b) 7239
 - (c) 7932
 - (d) 7529
17. Find the missing term of series 2, 7, 16, 29...., 67, 92
- (a) 39
 - (b) 46
 - (c) 43
 - (d) 62
18. In a certain language 'MENTION' is written as 'NFOUJPO', the code of 'MYSTIFY' is:
- (a) NZTUJGZ
 - (b) NFOFTJT
 - (c) LNEITNO
 - (d) OERESTIN
19. Anil started walking 5 kms towards north then he turned left and walked 3 kms. Again, he turned left and walked 5 kms. Then the total number of kms he walked is
- (a) 13 kms
 - (b) 8 kms
 - (c) 3 kms
 - (d) 5 kms

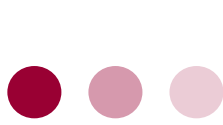
20. Raju started walking 10 kms towards east from his home. He turned right and walked 5 kms to the south to reach his school. In which directions is his school from his home?
- (a) South – East
 - (b) North – East
 - (c) South – West
 - (d) North – West
21. L is wife of N, P is son of N, K is brother of N and father of O. What is the relationship of P and O?
- (a) Uncle
 - (b) Brother
 - (c) Cousin
 - (d) Nephew
22. Standard Error (SE) and square root of sample size are
- (a) Directly proportional
 - (b) Equal
 - (c) Inversely proportional
 - (d) Not equal
23. Out of 1000 persons 40% are female, others are male. In a marriage function, 300 persons enjoyed the song. 30% of the people who had not enjoyed the song were female. What is the number of male, who did not enjoy the song in the function?
- (a) 120
 - (b) 180
 - (c) 360
 - (d) 490
24. Find the Harmonic Mean of 2, 4 & 6.
- (a) 3.30
 - (b) 3.00

- (c) 3.75
 - (d) 4.00
25. If the mode of the following data is 13, then the value of x in the data set is 13, 8, 6, 3, 8, $13, 2x + 3$, 8, 13, 3, 5, 7
- (a) 6
 - (b) 5
 - (c) 7
 - (d) 8
26. The best measure of central tendency is
- (a) Mean
 - (b) Median
 - (c) Mode
 - (d) Range
27. For a distribution the mean is 30. The standard deviation is 2, then coefficient of variation is.
- (a) 6.67%
 - (b) 9.45%
 - (c) 7.5%
 - (d) 2.5%
28. Mean deviation is ____ when the deviations are taken from the median.
- (a) maximum
 - (b) minimum
 - (c) zero
 - (d) can't say
29. Ogive is used to find
- (a) Mean
 - (b) Median
 - (c) Mode

- (d) Range
30. A population comprises 7 members. The number of all possible samples of size 3 that can be drawn from it with replacement is
- (a) 216
 (b) 343
 (c) 21
 (d) 125


SUGGESTED ANSWERS

1.	(b)	2.	(d)	3.	(c)	4.	(c)	5.	(c)
6.	(b)	7.	(b)	8.	(d)	9.	(d)	10.	(d)
11.	(c)	12.	(a)	13.	(a)	14.	(a)	15.	(a)
16.	(b)	17.	(b)	18.	(a)	19.	(a)	20.	(a)
21.	(c)	22.	(c)	23.	(d)	24.	(a)	25.	(b)
26.	(a)	27.	(a)	28.	(b)	29.	(b)	30.	(b)



PAPER – 3: QUANTITATIVE APTITUDE



QUESTIONS

1. The salaries of A, B and C are of ratio 2:3:5. If the increments of 15%, 10% and 20% are done their respective salaries, then find new salaries.
 - (a) 23: 33: 60
 - (b) 33:23:60
 - (c) 23: 60:33
 - (d) 33: 60: 23
2. $\log_4(x^2+x)-\log_4(x+1) = 2$, then the value of x is
 - (a) 2
 - (b) 3
 - (c) 16
 - (d) 8
3. If the nominal rate of growth is 17% and inflation is 9% for the five years. Let P be the Gross Domestic Product (GDP) amount at present year then the projected real GDP after 6th year is
 - (a) 1.587P
 - (b) 1.921P
 - (c) 1.403P
 - (d) 2.51P

4. What will be 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 5% in III year?
- (a) ₹ 28,119
(b) ₹ 29,118
(c) ₹ 27, 000
(d) ₹ 30, 000
5. The future value of an annuity of ₹ 1500 made annually for five years at interest of 10% compounded annually is (Given that $(1.1)^5 = 1.61051$)
- (a) ₹ 9517.56
(b) ₹ 9157.65
(c) ₹ 9715.56
(d) ₹ 9175.65
6. Find the effective annual rate of interest corresponding to a nominal rate of 8% per annum payable half-yearly is:
- (a) 8.8%
(b) 8.23%
(c) 8.6%
(d) 8.16%
7. If the sum of 'terms of an Arithmetic Progression is $2n^2$, the fifth term is.
- (a) 20
(b) 50
(c) 18
(d) 25
8. The number of words that can be formed out of the letters of the word "ARTICLE" so that vowels occupy even places is
- (a) 36
(b) 144

- (c) 574
(d) 754
9. Let Z be the universal set for two sets – A and B . If $n(A) = 300$, $n(B) = 400$ and $n(A \cap B) = 200$, then $n(A' \cap B')$ is equal to 400 provided $n(Z)$ is equal to
- (a) 900
(b) 800
(c) 700
(d) 600
10. In a group of students 80 can speak Hindi, 60 can speak English and 40 can speak Hindi and English both, then number of students is:
- (a) 100
(b) 140
(c) 180
(d) 60
11. If $f(x) = x^2 - 1$ and $g(x) = 2x + 3$ then $g \circ f(3)$
- (a) 71
(b) 61
(c) 41
(d) 19
12. $\int 2^{3x} \cdot 3^{2x} \cdot 5^x dx =$
- (a) $\frac{2^{3x} \cdot 3^{2x} \cdot 5^x}{\log(270)} + C$
(b) $\frac{2^{3x} \cdot 3^{2x} \cdot 5^x}{\log(360)} + C$
(c) $\frac{2^{3x} \cdot 3^{2x} \cdot 5^x}{\log(180)} + C$

(d) $\frac{2^{3x} \cdot 3^{2x} \cdot 5^x}{\log(90)} + C$

13. Marginal cost and marginal revenue of a commodity is $C'(x)=8+6x$ and $R'(x)=30$. Fixed cost is 0. Find the total profit.
- (a) $22x + 3x^2$
 (b) $22x - 3x^2$
 (c) $22x - x^2$
 (d) $x + 3x^2$
14. If $2x+5 > 3x+2$ and $2x-3 \leq 4x-5$, then 'x' can take which of the following value?
- (a) 4
 (b) -4
 (c) 2
 (d) 2
15. The value of scooter is ₹ 1,00,000 find its depreciation is 10% p.a. Calculate total depreciation value at the end of seven years.
- (a) ₹ 47829.70
 (b) ₹ 47000.90
 (c) ₹ 42709
 (d) ₹ 42,000
16. Find out the wrong number. 2,10,18,54,162,486,1458
- (a) 18
 (b) 10
 (c) 54
 (d) 162
17. In a certain code, "Delhi is capital" is coded as "7 5 9", "capital are beautiful" is coded as "3 6 9", "Delhi is beautiful" is coded as "6 7 5", "Patna also capital" is coded as "9 2 4". What is code for "beautiful" ?

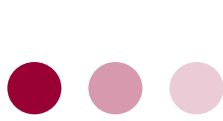
- (a) 2
 - (b) 4
 - (c) 6
 - (d) 9
18. Pointing towards photograph. Vinod said "she is the daughter of my wife's mother's only daughter ". How is Vinod is related to the girl in the Photograph?
- (a) Cousin
 - (b) Uncle
 - (c) Father
 - (d) None
19. Sanjay started from his house towards west. After a walking a distance 15 km he turned to the right and walked 10 km, he again turned to the right and walked 5 km. After this he turns Clockwise direction at 135° and covered 10 km in which direction should he is going?
- (a) South
 - (b) South-West
 - (c) South-East
 - (d) North –West
20. If, in a code, MIND becomes KGLB and ARGUE becomes YPESC, then what will DIAGRAM be in that code?
- (a) BGYEPYK
 - (b) BGYPYEK
 - (c) GLPEYKB
 - (d) LKBGYPK
21. The Standard deviation is independent of change of
- (a) Scale
 - (b) Origin

- (c) Both (a) and (b)
 - (d) None of these
22. The coefficients of correlation between two variables x and y is the simple _____ of two regression coefficients.
- (a) Harmonic Mean
 - (b) Arithmetic Mean
 - (c) Geometric Mean
 - (d) None of the above
23. Two regression lines coincide when:
- (a) $r = \pm 1$
 - (b) $r = 0$
 - (c) $r = 2$
 - (d) None of these
24. For a normal distribution $Q_1 = 54.32$ and $Q_3 = 78.86$, then the median of the distribution is
- (a) 12.17
 - (b) 39.43
 - (c) 66.59
 - (d) None of these
25. In a Binomial Distribution $B(n, p)$, $n = 4$, then $P(x=2) = 3 P(x=3)$ find P
- (a) $1/3$
 - (b) $2/3$
 - (c) $6/4$
 - (d) $4/3$
26. One card is drawn from a pack of 52, what is the probability that is a king or queen?
- (a) $11/13$

- (b) $2/13$
 - (c) $1/13$
 - (d) None of these
27. Circular test is satisfied by
- (a) Laspyres Index number
 - (b) Paschhes index number
 - (c) The simple geometric mean of price relatives and weighted aggregative with fixed weights.
 - (d) None of these
28. Standard deviation of first n natural number is 2. What is the value of n ?
- (a) 7
 - (b) 6
 - (c) 5
 - (d) 8
29. In the equation $4x+2y = 3$, quartile deviation for y is 3. Find the quartile deviation for x .
- (a) 4.5
 - (b) 6
 - (c) 1.5
 - (d) None of these
30. For a normal distribution, the first and third quartile are given to be 37 and 49, the mode of the distribution is.
- (a) 37
 - (b) 49
 - (c) 43
 - (d) 45

**SUGGESTED ANSWERS/HINTS**

1.	(a)	2.	(c)	3.	(a)	4.	(a)	5.	(b)
6.	(d)	7.	(c)	8.	(b)	9.	(c)	10.	(a)
11.	(d)	12.	(b)	13.	(b)	14.	(c)	15.	(a)
16.	(b)	17.	(b)	18.	(c)	19.	(b)	20.	(a)
21.	(b)	22.	(c)	23.	(a)	24.	(c)	25.	(b)
26.	(b)	27.	(c)	28.	(a)	29.	(c)	30.	(c)



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QUESTIONS

1. If $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{5}$ and $\frac{1}{x}$ are in proportion, then the value of x will be -
 - (a) $\frac{15}{2}$
 - (b) $\frac{6}{5}$
 - (c) $\frac{10}{3}$
 - (d) $\frac{5}{6}$
2. If $p = x^{1/3} + x^{-1/3}$, then find value of $3p^3 - 9p$
 - (a) 3
 - (b) $\frac{1}{2}(x+1/x)$
 - (c) $(x+1/x)$
 - (d) $2((x+1/x))$
3. If α and 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) $x^2 - 19x + 144 = 0$

4. The rules and regulations demand that the employer should employ not more than 5 experienced hands to 1 fresh one and this fact is represented by (Taking experienced person as x and fresh person as y) -
 - (a) $y \geq \frac{x}{5}$
 - (b) $5y \leq x$
 - (c) $5x > y$
 - (d) none of these
5. 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) $2. (6! 4!)$
- 6.. What will be the population after 3 years. When the population increases at the rate 3 % in I year, 4 % in II year and 5% in III year. If the beginning of the population was 25,000?
 - (a) 28,119
 - (b) 29,118
 - (c) 27,000
 - (c) 30,000
7. If ₹ 10,000 is invested at 8 % per annum, then compounded quarterly. Then value of investment after 2 years is
 - (a) ₹ 11,716.59
 - (b) ₹ 10,716.59
 - (c) ₹ 12,715.59
 - (d) none of these

8. In how many years will a sum of money become double at 5% p.a. compound interest:
- 14 years
 - 15 years
 - 16 years
 - 14.3 years
- 9.. The future value of an annuity of ₹ 1,000 is made annually for 5 years at interest rate of 14% compounded annually [Given that $(1.14)^5 = 1.92541$] is _____
- ₹ 5610
 - ₹ 6610
 - ₹ 6160
 - ₹ 5160
10. If $f(x) = x+2$, $g(x) = 7^x$, then $\text{gof}(x) = \underline{\hspace{2cm}}$
- $7^x \cdot x + 2 \cdot 7^x$
 - 7^{x-2}
 - $49(7^x)$
 - none of these
11. Given $x = 2t + 5$; $y = t^2 - 2$, then $\frac{dy}{dx}$ is calculated as -
- t
 - 1/t
 - 1/t
 - none of these
12. If $Z = 52$ and $ACT = 48$, then BAT will be equal to -
- 39
 - 41

- (c) 44
(d) 46
13. If ROSE is coded as 6821, CHAIR is coded as 73456 and PREACH is coded as 961473, what will be the code for SEARCH?
- (a) 246173
(b) 214673
(c) 214763
(d) 216473
14. Find the missing term in each of the following series: 28, 33, 31, 36, 34?
- (a) 48
(b) 39
(c) 54
(d) 62
- 15.. Raju leaves his house and walks 12 km towards North. He turns right and walks another 12 km. He turns right, walks 12 km more and turns left to walk 5 km. How far is he from his home and in which direction?
- (a) 7 km east
(b) 10 km east
(c) 17 km east
(d) 24 km east
16. 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
17. Sanjay has three daughters, and each daughter has a brother. How many male members are there in the family?

- (a) 4
 - (b) 2
 - (c) 3
 - (d) 1
18. Median of a distribution can be obtained from -
- (a) Frequency polygon
 - (b) Histogram
 - (c) ogives
 - (d) None of these.
19. Cost of sugar in a month under the heads raw Materials, labour, direct production and others were 12, 20, 35 and 23 units respectively. What is the difference between the central angles for the largest and smallest components of the cost of sugar?
- (a) 72°
 - (b) 48°
 - (c) 56°
 - (d) 92°
20. For open-end classification, which of the following is the best measure of central tendency?
- (a) AM
 - (b) GM
 - (c) Median
 - (d) Mode
21. The quartiles of a variable are 45, 52 and 65 respectively. Its quartile deviation is -
- (a) 10
 - (b) 20
 - (c) 25

- (d) 8.30
22. If x and y are related by $y = 2x + 5$ and the SD and AM of x are known to be 5 and 10 respectively, then the coefficient of variation of y is -
- (a) 25
(b) 30
(c) 40
(d) 20
23. Given that for two events A and B , $P(A) = 3/5$, $P(B) = 2/3$ and $P(A \cap B) = 3/4$, what is $P(A/B)$?
- (a) 0.655
(b) $13/60$
(c) $31/60$
(d) 0.775
24. The SD of a binomial distribution with parameter n and p is -
- (a) $n(1-p)$.
(b) $np(1-p)$.
(c) np .
(d) $\sqrt{np(1-p)}$.
25. X and Y stand in a line with 6 other people. What is the probability that there are 3 persons between them?
- (a) $1/5$
(b) $1/6$
(c) $1/7$
(d) $1/3$
26. The deviations are minimum when taken from -
- (a) Mean
(b) Median

- (c) Mode
 - (d) GM
27. Histogram is useful to determine graphically the value of -
- (a) Arithmetic Mean
 - (b) Median
 - (c) Mode
 - (d) HM
28. If x and y are related as $3x-4y= 20$ then the Quartile Deviation of x is 12, then the Quartile Deviation of y is -
- (a) 14
 - (b) 15
 - (c) 16
 - (d) 9
29. If the coefficient of correlation between two variables is -0.9 , then the coefficient of determination is -
- (a) 0.9
 - (b) 0.81
 - (c) 0.1
 - (d) 0.19
30. For a Poisson Variate x , $P(x=2) = 3 P(x=4)$, then the standard deviation of x is
- (a) 2
 - (b) 4
 - (c) $\sqrt{2}$
 - (d) 3



SUGGESTED ANSWERS/HINTS

1.	(a)	2.	(c)	3.	(c)	4.	(a)	5.	(c)
6.	(a)	7.	(a)	8.	(d)	9.	(b)	10.	(c)
11.	(a)	12.	(d)	13.	(b)	14.	(b)	15.	(c)
16.	(a)	17.	(b)	18.	(c)	19.	(d)	20.	(c)
21.	(a)	22.	(c)	23.	(d)	24.	(d)	25.	(c)
26.	(b)	27.	(c)	28.	(d)	29.	(b)	30.	(c)