1. 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

2. For any two dependent events A and B, $P(A) = 5/9$ and $P(B) = 6/11$ and $P(A \cap B) = 10/33$. What are the values of $P(A/B)$ and $P(B/A)$?

A. 5/9, 6/11
B. 5/6, 6/11
C. 1/9, 2/9
D. 2/9, 4/9

3. In a study about the male and female students of Commerce and Science departments of a college in 5 years, the following data's 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 and 2000 if x denotes the ratio of female commerce student to female Science student and y denotes the ratio of male commerce student to male Science student, then

A. $x = y$
B. $x > y$
C. $x < y$
D. $x \geq y$

4. If the AM and 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

5. The average number 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}

6. Six children, named as P, Q, R, S, T and U, are sitting in a row. Q is between U and S; T is between P and R, P does not sit next to either U or Q, R does not sit next to S. So, U is sitting between the pairs _____ of children.

A. Q and T
B. Q and R
C. Q and S
D. Q and P

7. Five persons A, B, C, D and E are sitting in a row. A sits left to C and C sits left to B. E sits rights to B. D sits in between E and B. Who is sitting in the middle?

A. B
B. C
C. E
D. D

8. Four ladies A, B, C and D and four Gentlemen E, F, G and H are sitting in a circle around a table facing each other.

I. No two ladies or gentlemen are sitting side by side.
II. C, who is sitting between G and E, facing D.
III. F is between D and A and facing G.
IV. H is to the right of B
Who is immediate neighbour of B?

A. G and H
B. E and F
C. E and G
D. A and B

9. Persons M, N, O, P, Q, R, S and T are sitting on a compound wall facing North. O sits fourth left of S; P is second to the right of S; only two people sit between P and M; N and R are immediate neighbours of each other. N is not an immediate neighbour of M; T is not a neighbour of P. How many persons are seated between M and Q?

A. one
B. two
C. three
D. four

10. In a line, P is sitting 13th from left. Q is sitting 24th from the right and 3rd left from P. How many people are sitting in the line?

A. 34
B. 31
C. 32
D. 33

11. The number of four letter words can be formed using the letters of the word DECTIONARY is

A. 5040
B. 720
C. 90
D. 30240

12. The number of words that can be formed using the letters of "PETROL" such that the words do not have "P" in the first position, is

A. 720
B. 120
C. 600
D. 540

13. If the sum and product of three numbers in G.P. are 7 and 8 respectively, then 4th term of the series is

A. 6
B. 4
C. 8
D. 16

14. Mr. X wants to accumulate ₹ 50,00,000 at the 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

15. If $^nP_3 = 12$, then the value of n is

A. 2
B. 3
C. 4
D. 6

16. 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

17. Let $a=(\sqrt{5}+\sqrt{3})/(\sqrt{5}-\sqrt{3})$ and $b=(\sqrt{5}-\sqrt{3})/(\sqrt{5}+\sqrt{3})$. What is the value of a^2+b^2?

A. 64
B. 62
C. 60
D. 254

18. Incomes of R and S are in the ratio 7 : 9 and their expenditures are in the 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

19. A bag has 105 coins containing some 50 paise, and 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

20. 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. $x+y+1$
C. $x+y-1$
D. $2x+y-1$

21. XYZ Company has a policy for its recruitment as : it should not recruit more than eight men (x) to three women (y). How can this fact be expressed in inequality?

A. $3y \geq 8x$
B. $3y \leq x/8$
C. $8y \geq 3x$
D. $8y \leq 3x$

22. 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

23. Which of the following pair of events E and F are mutually exclusive?

A. E = {Ram's age is 13} and F = {Ram is studying in a college}
B. E = {Sita studies in a school} and F = {Sita is a play back singer}
C. E = {Raju is an elder brother in a family} and F = {Raju's father has more than one son}
D. E = {Banu studied B.A. English literature} and F = {Banu can read English novels}

24. Four unbiased coins are tossed simultaneously. The expected number of heads is :

A. 1
B. 2
C. 3
D. 4

25. 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

26. 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 and will lose ₹ 100 per day if there is no rain. The expected earnings (in ₹) per day of the salesman is

A. 400
B. 200
C. 100
D. 0

27. Let X be normal distribution with mean 2.5 and variance 1. If $P[a < X < 2.5] = 0.4772$ and that the cumulative normal probability value at 2 is 0.9772, then $a = ?$

A. 1.5
B. 3
C. –3.5
D. –4.5

28. D is daughther of E. A is son of C. C is brother of A and B is sister of A. F is brother of D. How F is related to B?

A. Father-in-law
B. Uncle
C. Brother
D. Mother-in-law

29. Introducing a boy a girl said, "He is the son of the daughter of the father of my uncle". Who is the boy to the girl?

A. Brother
B. Nephew
C. Uncle
D. Son-in-law

30. 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

31. 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

32. 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

33. A National Institute arranged its students 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

34. The sum of series $7 + 14 + 21 + \ldots$ to 17^{th} term is :

A. 1071
B. 971
C. 1171
D. 1271

35. Out of a group of 20 teachers in a school, 10 teach Mathematics, 9 teach Physics and 7 teach Chemistry. 4 teach Mathematics and Physics but none teach both Mathematics and Chemistry. How many teach Chemistry and Physics; how many teach only Physics?

A. 2, 3
B. 3, 2
C. 4, 6
D. 6, 4

36. The sum of first n terms of 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, ...

37. The largest value of n for which $\frac{1}{2} + \frac{1}{2^2} + \ldots \frac{1}{2^n} < 0.998$ is _____.

A. 9
B. 6
C. 7
D. 8

38. If a is related to b if and only if the difference in a and 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

39. 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. $x^2 + 3ax - 2a^2 = 0$

40. 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

41. In a department, the number of males and females are in the ratio 3 : 2. If two males and 5 females join department, then the ratio becomes 1 : 1, initially the number of female in the department is

A. 9
B. 6
C. 3
D. 8

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

A. 8
B. 6
C. 4
D. 2

43. In a multiple choice question paper consisting of 100 questions of 1 mark each, a candidate get 60% marks. If the candidate attempted all question and there was a penalty of 0.25 marks for wrong answer, the difference between number of right answers and wrong answers is :

A. 32
B. 36
C. 40
D. 38

44. The 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

45. The manufacturer of a certain electronic component is certain that 2% of his product is defective. He sells the components in boxes of 120 and 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

46. In a group of 20 males and 15 females, 12 males and 8 females are service holders. What is the 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

47. There are 3 boxes with the following composition:
Box I : 7 Red + 6 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 and a ball is drawn from it.
What is the probability the drawn ball is red?

A. 1249/3024
B. 1247/3004
C. 1147/3024
D. 1/2

48. A student marks in five subject S1, S2, S3, S4 and S5 are 86, 79, 90, 88 and 89. If we need to draw a Pie chart to represent these marks, then what will be the Central angle for S3?

A. 103.2°
B. 75°
C. 105.6°
D. 94.8°

49. 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

50. If two variables a and 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

51. For a moderately skewed distribution, the median is twice the mean, then the mode is _____ times the median.

A. 3
B. 2
C. 2/3
D. 3/2

52. The median value of the set of observations 48, 36, 72, 87, 19. 66, 56, 91 is

A. 53
B. 87
C. 61
D. 19

53. 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

54. 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. $\frac{1}{x}-1$

55. 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. 20
D. 50

56. 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. $x^3(4x-1)/e^x$

57. 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

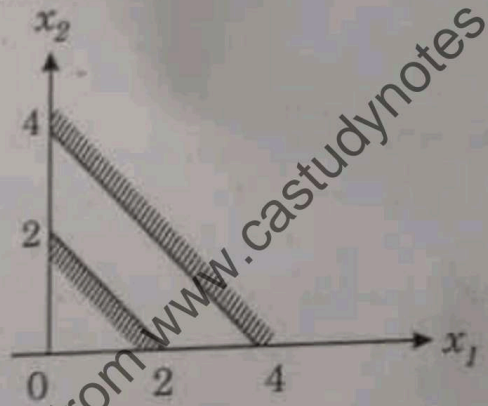
58. If the square of a number exceeds twice of the number by 15, then number that satisfies the condition is

A. –5
B. 3
C. 5
D. 15

59. 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

60. 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. $x_1 + x_2 \leq 2;$
$x_2 x_1 + x_2 \leq 4;$
$x_1 \geq 0, x_2 \geq 0$

C. $x_1 + x_2 \geq 2;$
$x_1 + x_2 \geq 4;$
$x_1 \geq 0, x_2 \geq 0$

D. $x_1 + x_2 \leq 2;$
$x_1 + x_2 > 4;$
$x_1 \geq 0, x_2 \geq 0$

61. 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

62. A renowned hospital usually admits 200 patients everyday. 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 the probability that more than 3 patients would require special room facilities?

A. 0.1428
B. 0.1732
C. 0.2235
D. 0.3450

63. 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 and y?

A. 2, 1
B. 1, 2
C. 4, 2
D. 2, 4

64. The intersecting point of two regression lines falls at X-axis. If the mean of X-values is 16, the standard deviations of X and Y are respectively, 3 and 4, then the mean of Y-values is

A. 16/3
B. 4
C. 0
D. 1

65. The regression coefficients remain unchanged due to

A. Shift of origin
B. Shift of scale
C. Always
D. Never

66. For a probability distribution, probability is given by, $P(X_i) = \frac{X_i}{k}$; $X_i = 1,2,\ldots,9$.

The value of k is :

A. 55
B. 9
C. 45
D. 81

67. 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, the 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 standard deviation
C. Mode
D. Mean

68. One hundred participants expressed their opinion on recommending a new product to their friends using the attributes : most unlikely, unlikely, not sure, likely, most likely. The appropriate measure of central tendency that can be used here is

A. Mean
B. Mode
C. Geometric mean
D. Harmonic mean

69. Ogive curves cannot be used to determine

A. Mean
B. Median
C. Mode
D. Range

70. 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. Weighted mean

71. 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

72. 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

73. What comes at the last place in R, U, X, A, D, _____?

A. E
B. F
C. G
D. H

74. The missing term of the series 4, 13, _____, 49, 76 is

A. 26
B. 28
C. 30
D. 32

75. Find the odd one from the following :

A. Zebra
B. Giraffe
C. Horse
D. Tiger

76. 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

82. 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

83. 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

84. From the following data base year:

Commodity	Base year		Current year	
	Price	Quantity	Price	Quantity
A	4	3	6	2
B	5	2	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

85. Index numbers are not helpful in

A. Framing economic policies
B. Revealing trend
C. Forecasting
D. Identifying errors

86. The three index numbers, namely, Laspeyre, Paasche and Fisher do not satisfy ———— test.

A. Time reversal
B. Factor reversal
C. Unit
D. Circular

87. 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

88. The following data relate to the marks of 48 students in Statistics:

56	10	54	38	21	43	12	2
48	51	39	26	12	17	3	19
48	36	15	33	30	6	57	17
5	17	45	46	4	55	57	38
43	28	32	35	4	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

89. Given that mean = 70.20 and mode = 70.50, the median is expected to be

A. 70.15
B. 70.20
C. 70.30
D. 70.35

90. 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.

91. If in a certain code "THANKS" is written as "SKNTHA", then how is "STUPID" written?

A. DIPUTS
B. DISPUT
C. DIPUST
D. DIPSTU

92. 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. Eastern side
B. Western side
C. Northern side
D. Southern side

93. R's office is 4 km in East direction from his home and club is 4 km in North direction from his home. On midway from office to club, he starts moving towards his home. In which direction is he facing his back?

A. South-East
B. North-West
C. North-East
D. South-West

94. 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 straight 2 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

95. The hour hand of a clock is in west direction when time is 3'O clock. What is the direction of minutes hand when time is 6:45?

A. East
B. West
C. North
D. South

96. A company needs ₹ 10,000 in five years to replace an equipment. How much (in ₹) must be invested now at an interest rate of 8% p.a. in order to provide for this equipment?

A. ₹6,505
B. ₹6,805
C. ₹10,505
D. ₹11,505

97. R needs to pay ₹ 5,00,000 after 10 years. He invested a sum in a scheme at 9% rate of interest compounded half-yearly. How much amount (in ₹) he invested? $(1.045^{20} = 2.41171)$

A. 3,07,321
B. 2,70,321
C. 2,07,321
D. 3,40,321

98. 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 = _____.

A. 5
B. 6
C. 5½
D. 6½

99. A sum of money is put at 12% 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

100. The present value of an annuity of ₹ 25,000 to be received after 10 years at 6% per annum compounded annualy is ₹ _____. $(1.06^{5} = 1.33823)$

A. ₹ 16,960
B. ₹ 13,960
C. ₹ 11,960
D. ₹ 17,960