

IGP
Mock Test Paper

1. If $\log_{100000} x = \frac{-1}{5}$, then x is given by:

- (a) $\frac{1}{100}$ (b) $\frac{1}{10}$
(c) $\frac{1}{20}$ (d) None of these

2. If one root of a equation is $2 - \sqrt{5}$, then the quadratic equation is:

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

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

- (a) $\left\{ x: \frac{19}{18} \leq x \leq \frac{29}{18} \right\}$ (b) $\left\{ x: \frac{7}{9} \leq x \leq \frac{17}{9} \right\}$
(c) $\left\{ x: \frac{-29}{18} \leq x \leq \frac{-19}{18} \right\}$ (d) None of these

4. Rohan fails to complete a building in a certain specified time is compelled to loss Rs. 200 for the first day of extra time required and thereafter loss 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) 22 days
(c) 23 days (d) 21 days

5. If $x = 1 + \frac{1}{3} + \frac{1}{3^2} + \dots \infty$
 $y = 1 + \frac{1}{4} + \frac{1}{4^2} + \dots \infty$

Find $2x+3y$.

- (a) 2 (b) 1
(c) 7 (d) $\frac{1}{2}$

6. Sum of series $1 + \frac{4}{5} + \frac{7}{5^2} + \frac{10}{5^3} + \dots \infty$ is

- (a) 15/36 (b) 35/36
(c) 35/16 (d) 15/16

7. 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

8. If $f: R \rightarrow R, f(x) = 2x + 7$, then the 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.

9. Let $f: R \rightarrow R$ be such that $f(x) = 2^x$, then $f(x - y)$ equals :

- (a) $f(x) + f(y)$ (b) $f(x).f(y)$
(c) $f(x) \div f(y)$ (a) None of these

10. On the set of lines, being parallel is a _____ relation.

- (a) Reflexive (b) Symmetric
(c) Transitive (d) None of these.

11. The 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

12. Find the number of combinations of the letters of the word COLLEGE taken four together:

- (a) 18 (b) 16
(c) 20 (d) 26

13. 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

14. 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

15. the value of $\int_0^4 \frac{\sqrt{x}}{\sqrt{x} + \sqrt{4-x}} dx$ is :

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

16. The value of $\int_0^1 \frac{dx}{(1+x)(2+x)}$ is:

- www.igpinstitute.org

- (a) Favourable
(b) Unfavourable
(c) Unfavourable
(d) Favourable

30. A 6 year bond of Rs.1,0000 has an annual rate of interest of 14%. Interest is paid half-yearly. If required rate of return is 16%, what is the value of the bond?

- (a) Rs.9250 (b) Rs.9520
(c) Rs.9500 (d) Rs.9450

31. A sum of money doubles itself in 15 years. The number of years it would trebles itself is -

- (a) 50 years. (b) 30 years.
(c) 75 years. (d) None of these.

32. What sum of money will produce Rs.28,600 interest in 3 yrs& 5 months at 2.5% p.a. simple interest?

- (a) Rs.3,52,000 (b) Rs.3,40,000
(c) Rs.3,25,000 (d) Rs.3,56,000

33. A certain sum of money at simple interest amounts to Rs.2,800 in 2 years and to Rs.3,220 in 5 years. The rate of interest p.a. is -

- (a) $6\frac{1}{3}\%$ (b) 5.5 %
(c) $2\frac{1}{4}\%$ (d) $6\frac{1}{8}\%$

34. The compound interest on a certain sum for 2 years is Rs.41.60 and the simple interest is Rs.40. Find the sum.

- (a) Rs.500 (b) Rs.400
(c) Rs.250 (d) Rs.300

35. Present value of a scooter is Rs. 7,200 if the value decreases every year by 10% then its value before 3 years is equal to:

- (a) Rs. 10,000 (b) Rs. 10,500
(c) Rs. 20,000 (d) Rs. 20,500

36. Find out the Real rate of return if NRR is 12% and WPI is 7%

- (a) 19% (b) 84%
(c) 5% (d) None

37. Find the CAGR for the following:

Year	1	2	3	4	5	6
Revenue	10	12	15	17	21	26

- (a) 11% (b) 8%
(c) 5% (d) None

38. Find the net present value for the following if cost of capital is 12%

year	Cash flows(in Cr)
0	(5)
1	2
2	3.50
3	4.75
4	1
5	3

- (a) Rejected (b) accepted
(c) can not say (d) none

39. Samar purchases a car for Rs. 5,50,000. He gets a loan of Rs. 5,00,000 at 15% p.a. from a Bank and balance Rs. 50,000 he pays at the time of purchase. He has to pay the 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:

- (a) Rs. 45,130.43 (b) Rs. 45,230.43
(c) Rs. 45,330.43 (d) None of these

40. A student obtained the mean and standard deviation of 100 observations as 40 and 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

41. Jaggi left home and cycled 10km southward, turned right and cycled 5km and turned right and cycled 10km and turned left and cycled 15km. How many kilometres will he have to cycled to reach his home straight?

- (a) 10 (b) 15
(c) 20 (d) 25

42. Jully started from her house and walked 2 km towards North. Then she took a right turn and covered one km. Then she took again a right turn and walked for 2 kms. In what direction is she now ?

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

43. Five friends are sitting on a bench. A is to the left of B but on the right of C, D is to the right of B but one the left of E. Who are at the extremes?

- (a) A, B (b) A, D
(c) C, E (d) B, D

44. Six students are sitting in a row in an examination hall. K is sitting between V and R. V is sitting next to M. M is sitting next to B. B is sitting on the extreme left and Q is sitting next to R. Who are sitting adjacent to V?

- (a) M and R (b) M and K
(c) K and R (d) M and Q

45. Six persons M, N, O, P, Q and R are sitting in two rows with three persons in each row. Both the rows are in front of each other. Q is not at the end of any row. P is second from the left of R. O is the neighbour of Q and diagonally opposite to P. N is the neighbour of R. Who is in front of N?

- (a) R (b) Q
(c) P (d) M

46. Mark is facing East, then he turns left and goes 10 meters then turns right and goes 5 meters then goes 5 meters to the south and from there 5 meters to the east. In which direction is he from his original place?

- (a) SE (b) SW
(c) NE (d) South

47. Madhuri moved a distance of 75 meters towards north. She then turned to the left and walking for about 25m, turned left again and walked 80m. Finally she

turned to the right at the angle of 145° . In which direction was she moving finally?

- (a) South-East (b) South-West
(c) North-west (d) North-East

48. Piddi starts from a point towards North, walks 3km towards his right and turns right again and walks and again takes 3 more left turns. What is the direction now he is facing?

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

49. SYSTEM is coded as 131625 then TERMA will be coded as?

- (a) 62259 (b) 62459
(c) 64259 (d) 62419

50. Find the odd man out,

1, 5, 14, 30, 51, 55, 91

- (a) 5 (b) 55
(c) 51 (d) 91

51. If A = 2, MAT = 37, JANAM = ?

- (a) 44 (b) 45
(c) 46 (d) 36

52. If SET is coded as 10249 then KRISH would be coded as

- (a) 920771602 (b) 1811201021
(c) 167720911 (d) 167209121

53. Pointing to a woman in the picture, Shaurya said her mother has only one grandchild whose mother is my wife. How is the woman's child in the picture related to Shaurya?

- (a) daughter (b) niece
(c) wife (d) sister-in-law

54. 5, 2, 7, 9, 16, 25, 41, ?

- (a) 65 (b) 66
(c) 67 (d) 68

Direction: (Q.No.55-56): $A \times B$ means A is brother of B, $A \div B$ means A is sister of B, $A + B$ means A is father of B, $A - B$ means A is mother of B.

55. Which of the following means P is nephew of K ?

- (a) $P \times M \div K \times T$ (b) $T + M - P \times K$
(c) $K - M \div T + P$ (d) $K \div M - P \times T$

56. Which of the following means F is grandfather of G ?

- (a) $F + J + G$ (b) $F - J + G$
(c) $H \times F + G$ (d) $G \div J \times F$

57. A girl introduce a boy as the son of the daughter of father of her uncle. The girl is boy's

- (a) Sister (b) Brother
(c) Son-in-law (d) Uncle

Directions(58-59):

A is the mother of B. B is sister of C. D is son of C. E a brother of D. F is mother of E. G is daughter of E.

58. Then no. of maximum female members

- (a) 6 (b) 5
(c) 4 (d) none

59. Which sampling is subjected to the discretion of the sampler?

- (a) Systematic sampling
(b) Simple random sampling
(c) Purposive sampling
(d) Quota sampling.

60. A man is facing West took 5 left and 8 right turs then he turns 45 degrees in the clockwise direction and then other 180 degrees in the same direction and then 270 degrees in the anticlockwise direction. Which direction in he facing now?

- (a) South-west (b) North-west
(c) North-east (d) South- east

61. Relative frequency for a particular class lies between :

- (a) 0 and 1 (b) 0 and 1, both inclusive
(c) -1 and 0 (d) -1 and 1

62. Find the number of observations between 350 and 400 from the following' data;

Value :	More than	More than	More than	More than
	200	350	400	450
No.of observations	48	25	12	0

- (a) 13 (b) 15
(c) 17 (d) 19

63. The column headings of a table are known as :

- (a) Body (b) Stub
(c) Box – head (d) Caption

64. Using Ogive Curve, we can determine:

- (a) Median (b) Quartile
(c) Both (a) and (b) (d) None.

65. A student obtained the mean and standard deviation of 100 observations as 40 and 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

66. For a moderately skewed distribution, quartile deviation and 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) $S. D. = \frac{3}{2} Q. D$

67. If two variables x and y are related by $2x + 3y - 7 = 0$ and the mean and mean deviation about mean of x are 1.5 and 0.3 respectively, then the co-efficient of mean deviation of y about mean is :

- (a) -5 (b) 4
(c) 12 (d) 15

68. Measures of dispersion are called averages of the _____ order.

- (a) 1st (b) 2nd
(c) 3rd (d) None

69. _____ & _____ are called ratio averages:

- (a) H. M. & G. M. (b) H. M. & A. M.
(c) A. M. & G. M. (d) None

70. If x and y are related as $3x - 4y = 20$ and the quartile deviation of y is 12, then the quartile deviation of x is :

- (a) 14 (b) 15
(c) 16 (d) 9

71. Suppose a population A has 100 observations 101, 102, 103,200 and another population B has 100 observations 151, 152, 153, 250. If V_A and V_B represents the variance of the two populations respectively, then $V_A / V_B =$

- (a) 9/4 (b) 1
(c) 4/9 (d) 2/3

72. The average salary of 50 men was Rs. 80 but it was found that salary of 2 of them were Rs. 46 and Rs. 28 which was wrongly taken as Rs. 64 and Rs. 82. The revised average salary is :

- (a) Rs. 80 (b) Rs. 78.56
(c) Rs. 85.26 (d) Rs. 82.92

73. Inter Quartile Range is _____ of Quartile Deviation.

- (a) Half (b) Double
(c) Triple (d) Equal

74. The standard deviation is independent of change of

- (a) Scale (b) Origin
(c) Both origin and scale (d) None

75. For any two events A and 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) $P(B - A) = P(B) + P(A \cap B)$

76. For two events A, B let $P(A) = \frac{2}{3}$, $P(B) = \frac{3}{8}$ and $P(A \cap B) = \frac{1}{4}$ then A and B are:

- (a) Mutually exclusive but not independent
(b) Independent but not mutually exclusive
(c) Mutually exclusive and independent
(d) None of these

77. 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 of these

78. In a game, cards are thoroughly shuffled and distributed equally among four players. What is the probability that a specific player gets all the four kings?

- (a) $\frac{{}^{13}C_4 \times {}^{48}C_{13}}{{}^{52}C_{13}}$ (b) $\frac{{}^4C_4 \times {}^{48}C_9}}{{}^{52}C_{13}}$
(c) $\frac{{}^{13}C_4 \times {}^{52}C_4}}{{}^{52}C_{13}}$ (d) $\frac{{}^4C_4 \times {}^{39}C_9}}{{}^{52}C_{13}}$

79. If 5% of the families in Kolkata do not use gas as a fuel, what will be the probability of selecting 10 families in a random sample of 100 families who do not use gas as fuel ?

- (a) 0.038 (b) 0.028
(c) 0.048 (d) 0.018

80. Pointing to a gentleman, Deepak said, "His only brother is the father of my daughter's father." How is the gentleman related to Deepak?

- (a) Father (b) Grandfather
(c) Uncle (d) Brother-in-law

81. For a certain normal variate X, the mean is 12 and S.D. is 4. Find $P(X \geq 20)$: [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

82. If the inflexion points of a Normal Distribution are 6 and 26. Find its Standard Deviation ?

- (a) 4 (b) 6
(c) 10 (d) 12.

83. In a discrete random variable X follows uniform distribution and assumes only the values 8,9,11,15,18,20. Then $P(X \leq 12)$ is

- (a) $\frac{1}{2}$ (b) $\frac{1}{3}$
(c) $\frac{2}{3}$ (d) $\frac{2}{5}$

84. If Y is a binomial variable with parameter 15 and $\frac{1}{3}$, then the value of the mode of the distribution:

- (a) 5 (b) 5 and 6
(c) 5.50 (d) 6

85. For the following data, the 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

86. 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)

87. Given the following data :

$$b_{xy} = 0.4 \text{ \& } b_{yx} = -1.6.$$

The coefficient of determination is :

- (a)- 0.64 (b) 0.42
(c) 0.58 . (d) none

88. The method applied for deriving regression equations is known as :

- (a) Concurrent deviation

- (b) Product moment
(c) Least squares
(d) Normal equation

89. Given the regression equations as

$3x + y = 13$ and $2x + 5y = 20$. Find regression equation of x on y.

- (a) $3x + y = 13$ (b) $2X + y = 20$
(c) $3x + 5y = 13$ (d) $2x + 5y = 20$

90. If 2 variables are uncorrelated, their regression lines are:

- (a) Parallel (b) Perpendicular
(c) Coincident (d) Inclined at 45 degrees.

91. The Circular Test is known as :

- (a) $P_{01} \times P_{12} \times P_{20} = 1$
(b) $P_{12} \times P_{01} \times P_{20} = 1$
(c) $P_{20} \times P_{12} \times P_{01} = 1$
(d) $P_{02} \times P_{21} \times P_{12} = 1$

92. Time reversal & factor reversal are:

- (a) Quantity Index (b) Ideal Index
(c) Price Index (d) Test of Consistency

93. Wholesale Price Index (WPI) is given by :

- (a) Marshall-Edgeworth Index
(b) Laspeyre's Index
(c) Paasche's Index
(d) None of the above.

94. If Bowley's index = 150, Laspeyer's index = 180, then Paasche's index =

- (a) 120 (b) 30
(c) 165 (d) None of these

95. If from a population with 25 members, a random sample without replacement of 2 members is taken, the number of all such samples is

- (a) 300 (b) 625
(c) 50 (d) 600

96. If the price of a commodity in a place have decreased by 20% over the base period prices, then the index number of that place is:

- (a) 30 (b) 60
(c) 70 (d) 80

97. In the year 2010 the monthly salary of a clerk was Rs. 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 to be paid to him?

- (a) Rs. 14,400 (b) Rs. 38,400
(c) Rs. 7,200 (d) None of these

98. 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)

99. 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

100. An example of a bi-parametric probability distribution:

- (a) Binomial (b) Poisson
(c) Normal (d) none