Mock Test Paper - Series I: December, 2025

Date of Paper: 19th December, 2025

Time of Paper: 2.00 P.M. to 4.00 P.M.

FOUNDATION COURSE

PAPER – 3: QUANTITATIVE APTITUDE

Time: 2 hours **Marks: 100**

1. If $x = \sqrt[3]{28}$ and $y = \sqrt[3]{27}$ find the value of $x + y - \frac{1}{x^2 + xy + y^2}$

   (a) 6

   (b) 5

   (c) 1

   (d) 0

2. Solve the following equation for x $\log_x (8x-3) - \log_x 4 = 2$

   (a) $\frac{3}{4}, \frac{1}{4}$

   (b) $\frac{3}{2}, \frac{1}{2}$

   (c) $-\frac{3}{4}, \frac{1}{4}$

   (d) $\frac{3}{4}, -\frac{1}{4}$

3. The product of $\sqrt[3]{2}.\sqrt[4]{2}.\sqrt[12]{32}$ equals

   (a) $\sqrt{2}$

   (b) 2

   (c) $\sqrt[12]{2}$

   (d) $\sqrt[12]{32}$

4. If $2^x = 4^y = 8^z$ and $\frac{1}{2x}+\frac{1}{4y}+\frac{1}{6z}=\frac{24}{7}$, then the value of z is

(a) $\frac{7}{16}$

(b) $\frac{7}{32}$

(c) $\frac{7}{48}$

(d) $\frac{7}{64}$

5. Three types of wheat costing ₹ 18 per kg, ₹ 20 per kg and ₹ 25. per kg mixed together. If the mixed variety sold at ₹ 22 per kg, then the ratio in which then these types of wheat should be mixed respectively is -

(a) 1:2:3

(b) 2:2:3

(c) 2:3:1

(d) 1:1:2

6. The age of a man is four times the sum of the ages of his two sons and after 10 years, his age will be double the sum of their ages. The present age of the man is -

(a) 56 years

(b) 45 years

(c) 60 years

(d) 64 years

7. What will be the value of k, if the roots of the equation $(k - 4)x^2 - 2kx + (k + 5) = 0$ are equal?

(a) 18

(b) 20

(c) 19

(d) 21

8. The roots of the cubic equation $x^3 - 7x + 6 = 0$ are

(a) 1, 2 and 3

(b) 1, –2 and 3

(c) 1, 2 and –3

(d) 1, –2 and –3

9. If arithmetic mean between roots of a quadratic equation is 8 and the geometric mean between them is 5, the equation is.

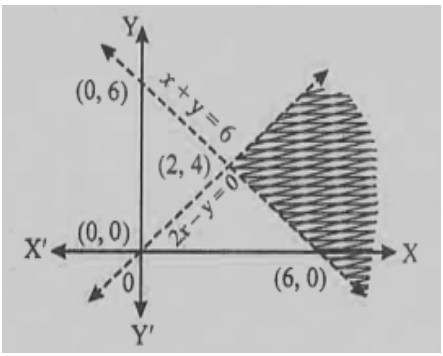
(a) $x^2 - 16x - 25 = 0$

(b) $x^2 - 16x + 25 = 0$

(c) $x^2 - 16x - 5 = 0$

(d) none of these

10. The shaded are is represented by which of the following option ?



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

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

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

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

11. A dietician recommends mixture of two kinds of foods to a person so that mixture contains at least 45 units of carbs, 25 units of protein, 15 units of fat and 15 units of fibre. The above contents of nutrients are available in the foods as below:

	Carbs	Protein	Fat	Fibre
Food - 1	20	5	3	2
Food - 2	10	2	4	5

If 'x' units of food-1 is mixed with 'y' units of food-2, how dietician recommendation can be expressed?

(a) $20x + 10y \leq 45$; $5x + 2y \geq 25$; $3x + 4y \leq 15$; $2x + 5y \geq 15$; $x \geq 0$; $y \geq 0$

(b) $20x + 10y \leq 25$; $5x + 2y \geq 45$; $3x + 4y \leq 15$; $2x + 5y \geq 15$; $x \geq 0$; $y \geq 0$

(c) $20x + 10y \geq 45$; $5x + 2y \geq 25$; $3x + 4y \geq 15$; $2x + 5y \geq 15$; $x \geq 0$; $y \geq 0$

(d) $20x + 10y \leq 45$; $5x + 2y$

12. The present value of sequence of payments of ₹ 800 made at the end of every 6 month and continuing forever, if money is worth 4% p.a. compounded semi-annually is

(a) ₹ 20,000

(b) ₹ 40,000

(c) ₹ 60,000

(d) ₹ 80,000

13. What sum of money invested now could establish a scholarship of ₹ 2500, which is to be awarded at end of every month forever, if money is worth 4% compounded annually

(a) ₹ 62,500

(b) ₹ 1,25,000

(c) ₹ 31,250

(d) none of these

14. In how many years will a sum of money becomes four times at 12% p.a. simple interest?

(a) 18 years

(b) 21 years

(c) 25 years

(d) 28 years

15. Manoj invests ₹ 12,000 at 6% per annum simple interest to obtain a total amount of ₹ 14,880. What is the time for which the amount was invested

(a) 3 years

(b) 4 years

(c) 2 years

(d) 5 years

16. The simple interest if the principal is ₹ 2,000 and the rate and time are roots of the equation $x^2 - 11x + 30 = 0$

(a) ₹ 500

(b) ₹ 600

(c) ₹ 700

(d) ₹ 800

17. 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

18. The future value of an annuity of ₹ 5,000 is made annually for 8 years at interest rate of 9% compounded annually is [Given that, $(1.09)^8 = 1.99256$]

(a) ₹ 55,142.22

(b) ₹ 65,142.22

(c) ₹ 65,532.22

(d) ₹ 57,425.22

19. Suppose your parent decides to open a PPF account in a bank towards your name with ₹ 10,000 every year starting from today for next years. When you receive and get 8.5% per annum interest rate compounded annually. What is the present value of this annuity?

(a) ₹ 83,042

(b) ₹ 80,900

(c) ₹ 90,100

(d) none

20. What will be the future value of an annuity ₹ 2500 made annually for 12 years at an interest rate of 5% compounded annually? If $(1.05)^{12} = 1.7958$

(a) ₹ 37588.58

(b) ₹ 39790.00

(c) ₹ 40873.13

(d) ₹ 42603.68

21. The Earning Per Share (EPS) of a company for five years is given below:

Year	2019	2020	2021	2022	2023
EPS	40	25	40	60	90

Calculate the compounded Annual Growth Rate (CAGR) of EPS.

(a) 24.47%

(b) 23.47%

(c) 22.47%

(d) 21.47%

22. If the initial investment of ₹ 4,00,000 becomes ₹ 6,00,000 in 24 months, then the compound Annual Growth Rate (CAGR) is:

(a) 30.33%

(b) 22.4%

(c) 19.46%

(d) 14.47%

23. How much money is required to be invested every year as to accumulate ₹ 6,00,000 at the end of 10 years, if interest is compounded annually at 10% rate of interest. [Given: $(1.1)^{10} = 2.59734$]

(a) ₹ 37,467

(b) ₹ 37,476

(c) ₹ 37,647

(d) ₹ 37,674

24. The number of 4 letter words with or without meaning that can formed out of the letters of the word 'WONDER' if repetition letters not allowed

(a) 24

(b) 6^4

(c) 4^6

(d) 360

25. The number of six-digit numbers can be formed by using the digits 1,2,1,2,0,2 is

(a) 50

(b) 60

(c) 110

(d) 10

26. In an examination there four multiple choice questions and each question has four choices. Number of ways fails to get all answer correct is

(a) 256

(b) 254

(c) 255

(d) 63

27. In a party every person shakes hands with every other person. If there are 105 handshakes in total, find the number of persons in the party.

(a) 15

(b) 14

(c) 21

(d) 22

28. The Sum of an Infinite GP is 10, -8, 6.4….is

(a) $\frac{50}{9}$

(b) $\frac{48}{9}$

(c) $\frac{42}{9}$

(d) $\frac{40}{9}$

29. if nth term of an AP is 2n+1, the sum of its first 20 terms of this A.P Is

(a) 400

(b) 420

(c) 440

(d) 480

30. Let a, b, c be in A.P. If P is A.M between a and b and q is the A.M. between b and c, then b is equal to

(a) $\frac{p+q}{2}$

(b) $\frac{p-q}{2}$

(c) $\frac{q-p}{2}$

(d) $\frac{pq}{2}$

31. If the sum of two extreme numbers of an A.P. with four terms is 8 and the product of remaining two middle terms is 15, then the greatest number will be

(a) 5

(b) 7

(c) 9

(d) 11

32. If A = {1,2,3,4,5}, B = {2,4,6} and C = {3,4,6} then (AUB)$\cap$C is

(a) {3,4,6}

(b) {1,2,3}

(c) {1,4,3}

(d) none of these

33. if A= {a, b}, B= {x, y, z} then the number of relations from B to A

(a) 8

(b) 16

(c) 32

(d) 64

34. In an election, two candidates A and B contested. y% of the total voters voted for A and (y+30) % for B. if 20% of the voters did not vote, then y =

(a) 30

(b) 25

(c) 40

(d) 35

35. Which of the following relations is a function?

(a) R = {(4,6), (3,9), (-11,6), (3,11)}

(b) R = {(1,2), (2,4), (2,6), (3,5)}

(c) R = {(2,1), (4,3), (6,5), (8,7) (10,9)}

(d) R = {(0,1), (1,3), (2,4), (3,1), (3,5)}

36. The slope of the tangent to the curve $y = x^2-x$ at the point where line y=2 cuts the curve in first quadrant is

(a) 2

(b) 3

(c) –3

(d) None of these

37. if the total cost producing x units of a commodity given by $C(x) = \frac{1}{3}x^3 + 2x^2 - 5x + 10$, then the marginal cost when x= 5 is

(a) ₹ 25

(b) ₹ 20

(c) ₹ 30

(d) ₹ 50

38. If the total cost function of producing x units of a commodity is given by $360-12x+2x^2$, then the level of output at which the total cost is minimum is

(a) 24

(b) 12

(c) 6

(d) 3

39. if the cost function of a product is given by MC = $10-4x+3x^2$and fixed cost is ₹ 500, then the total cost function is

(a) $10x-2x^2+x^3$

(b) $500+10x-2x^2+x^3$

(c) $-4+6x$

(d) $500+10x-8x^2+9x^3$

40. if the Marginal revenue function of a commodity is MR = $2x-9x^2$, then the revenue function is

(a) $2x^2-9x^3$

(b) $2-18x$

(c) x^2-3x^3

(d) $18+x^2-3x^3$

41. Find the next term of the series; 1, 5, 14, 30, 55, 91,?

(a) 130

(b) 140

(c) 150

(d) 160

42. Find the missing value in the series; 51, 52, 60, 87, 151,....., 492.

(a) 195

(b) 276

(c) 317

(d) 420

43. In a certain code language, if TOUR is written as 1234, CLEAR is written as 56784 and SPARE is written as 90847. Find the code for TEARS.

(a) 17847

(b) 14847

(c) 15247

(d) 17849

44. In a certain code, RIPPLE is written as 613382 and LIFE is written as 8192. How is PILLER written in that code?

(a) 318826

(b) 318286

(c) 618826

(d) 338816

45. In a series of letters, which one is the odd one out: BDFH, JLNP, RTVX, ZBDE?

(a) BDFH

(b) JLNP

(c) TVX

(d) ZBDE

46. Laxman went 15 km to the north, then he turned west and covered 10 km. Then he turned south and covered 5 km, finally turning to east he covered 10 km. In which direction he is moving now?

(a) East

(b) West

(c) North

(d) South

47. Manu wants to go to the market. He starts from his house towards the north and reaches a crossing after 30 m. He turns towards east, goes 10 m till the second crossing and turns again, moves towards south straight for 30 m where the marketing complex exits. In which direction is the market from his house?

(a) North

(b) South

(c) East

(d) West

48. Deepika starts walking straight towards East. After walking 65m, she turns to the left and walks 25m straight. Again she turns to be left and walks a distance of 40m. At what distance and in which direction currently she is from the initial point?

(a) 35.35 m in North-East

(b) 35.35 m in South-West

(c) 25 m in North

(d) 25 m in West

49. Mr. X walks 14 km towards north. From there he walks 8 km towards south. Then he walks 8 km towards the west. How far and in which direction is he with reference to his starting point?

(a) 10 km, North-West

(b) 10 km, West

(c) 7 km, East

(d) 7 km, West

50. Sunitha walked 30m towards the east, took a right turn and walked 40m, then she took a left turn and walked 30m. In which direction is she now from the starting point?

(a) North-East

(b) East

(c) South-East

(d) South

51. 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 to 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

52. 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 and M. Who is sitting immediate right to R.

(a) B

(b) N

(c) M

(d) S

53. Five players named as A, B, C, D and E are sitting on a bench, facing South and are waiting to be interviewed by a selector. The person C is an immediate neighbour of both A and B. The person A is the fourth person from the right end. If E is to the right of B, then where is E sitting?

(a) Fifth from the right end

(b) Fourth from the right end

(c) Fifth from the left end

(d) Fourth from the left end

54. Six friends A, B, C, D, E and F are sitting in a row facing towards North. C is sitting between A and E. D is not at the end. B is sitting immediate right of E. F is not at the right end but D is sitting at 3rd left of E. Who is at the immediate left of C?

(a) A

(b) E

(c) Either E or A

(d) Cannot be determined

55. Six girls, named P, Q, R, S, T, and V, are seated in a circle, all facing the center.

The following statements are given:

1. T is not seated between Q and S but instead, between two other individuals.
2. P is positioned immediately to the left of V.
3. R is located four seats to the right of P.

Which of the following statements is not true?

(a) V is seated just to the right of P.

(b) T is seated just to the right of V.

(c) R is positioned second to the left of T.

(d) P is seated second to the right of R.

56. A husband and wife had five married sons and each of these had four children. How many members are there in the family?

(a) 50

(b) 40

(c) 32

(d) 36

57. Pointing to the lady in the photograph, Seema said, “Her son’s father is the son-in-law of my mother.” How is Seema related to the lady?

(a) Sister

(b) Mother

(c) Cousin

(d) Aunt

58. A is B’s brother. C is D’s father. E is B’s mother. A and D are brothers. How is E related to C?

(a) Sister

(b) Sister-in- law

(c) Niece

(d) Wife

59. A is the mother of D and sister of B. B has a daughter C who is married to F. G is the husband of A. How is G related to D?

(a) Uncle

(b) Husband

(c) Son

(d) Father

60. If “A # B” means A is father of B, “A* B” means A is brother of B, “A @ B” means A is mother of B, then which of the following is correct about G @ T # P?

(a) G is mother of P

(b) P is father of T

(c) T is son of G

(d) P is brother of T

61. What does an Ogive represent?

(a) The cumulative frequency and class boundary

(b) The frequency and class boundary

(c) The frequency and cumulative frequency

(d) The frequency of the class interval

62. 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 frequency to the class Frequency

(d) Class Frequency to the Cumulative Frequency.

63. The Secondary data is collected by:

(a) Observation method.

(b) International source like World Bank.

(c) Interview method.

(d) Mailed questionnaire method.

64. Standard Error can be described as

(a) The error committed in k sampling

(b) The error committed in sample survey

(c) The error committed in estimating parameter

(d) Standard deviation of Statistic

65. If the difference between Mean and Mode is 69, then the difference between Mean and Median will be _____:

(a) 63

(b) 31.5

(c) 23

(d) None of these

66. 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°

67. The mean of a group X is 70 and the mean of group Y is 85. If the number of observations in group Y is five times that of group X, then the combined mean of both the groups is

(a) 80

(b) 75

(c) 77.5

(d) 82.5

68. Which of the following is not a type of sampling?

(a) Probability

(b) Non-Probability

(c) Stand-alone

(d) Mixed

69. Exit polls are an example of which method of collecting data?

(a) Random sampling

(b) Investigation

(c) Census

(d) Quota Sampling

70. A Professor has given assignment to students in a Statistics class. A student Jagan computes the arithmetic mean and standard deviation for a set of 100 observations as 50 and 5 respectively. Later on, Sonali points out to Jagan that he has made a mistake in taking one observation as 100 instead of 50. What would be the correct mean if the wrong observation is corrected?

(a) 50.5

(b) 49.9

(c) 49.5

(d) 50.1

71. 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 and 0.3 respectively, then the coefficient of mean deviation of y about its mean is

(a) –5

(b) 12

(c) 50

(d) 4

72. If x and y are related by $y = 2x + 5$ and 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

73. The arithmetic mean and coefficient of variation of data set x are respectively 10 and 30. The variance of $30 – 2x$ is

(a) 28

(b) 32

(c) 34

(d) 36

74. The quartiles of a variable are 45, 52 and 65 respectively. Its quartile deviation is

(a) 10

(b) 20

(c) 25

(d) 8.30

75. If the quartile deviation is 12 and the first quartile is 25, then the value of the third quartile is

(a) 37

(b) 49

(c) 61

(d) 60

76. In a city with a crime rate of 60%, the probability that among a group of 5 incidents, at least 4 are reported accurately is

(a) $\frac{1}{3125}$

(b) $\frac{1053}{3125}$

(c) $\frac{810}{3125}$

(d) $\frac{243}{3125}$

77. A coin with probability for head as 15 is tossed 100 times, then the standard deviation of the number of heads turned up is

(a) 3

(b) 4

(c) 7

(d) 1 0

78. When p = 0.5, the distribution is

(a) Asymmetrical

(b) Symmetrical

(c) Both of above

(d) None of above

79. If mean and standard deviation of a binomial distribution is 10 and 2 respectively, q will be ___

(a) 1

(b) 0.8

(c) 0.6

(d) 0.4

80. For a normal distribution, the ratio of mean deviation to the standard deviation is:

(a) 0.4

(b) 0.6

(c) 0.8

(d) 1.0

81. If X and Y are two independent normal variables with means 10 and 12, and standard deviations (S.D.) 3 and 4 respectively, then $(X + Y)$ is normally distributed with:

(a) Mean = 22 and S.D. = 7

(b) Mean = 22 and S.D. = 25

(c) Mean = 22 and S.D. = 5

(d) Mean = 22 and S.D. = 49

82. If 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) There will be no change in SD

83. For the first 20 natural numbers, the standard deviation is

(a) 5.77

(b) 7.75

(c) 5.64

(d) 6.54

84. A machine is made of two parts A and B. The manufacturing process of each part is such that probability of defective in part A is 0.08 and 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

85. If $P(\bar{A} \cup \bar{B}) = \frac{5}{6}$, $P(A) = \frac{1}{2}$ and $P(B) = \frac{2}{3}$ what is $P(A \cup B)$?

(a) 1

(b) $\frac{5}{6}$

(c) $\frac{2}{3}$

(d) $\frac{4}{9}$

86. The chance of getting 7 or 11 in a throw of 2 dice is

(a) $\frac{7}{9}$

(b) $\frac{5}{9}$

(c) $\frac{2}{9}$

(d) None of these

87. Let P be the probability function on $S = (X_1, X_2, X_3)$ if $P(X_1) = 1/4$ and $P(X_3) = 1/3$, then $P(X_2)$ is equal to

(a) 5/12

(b) 7/12

(c) 3/4

(d) None of these

88. Ticket numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn bears a number which is multiple of 3 or 7?

(a) 1/5

(b) 2/5

(c) 3/5

(d) None of these

89. The Interval $(\mu - 3\sigma, \mu + 3\sigma)$ covers

(a) 95% area of normal distribution

(b) 96% area of normal distribution

(c) 99% area of normal distribution

(d) All but not 0.27% area of a normal distribution

90. The two lines of regression are given by $8x + 10y = 25$ and $16x + 5y = 12$ respectively. If the variance of x is 25, what is the standard deviation of y?

(a) 16

(b) 8

(c) 64

(d) 4

91. The equations of 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

92. 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.

93. For n pairs of observations, the coefficient of concurrent deviation is calculated as $\frac{1}{\sqrt{3}}$ if there are six concurrent deviations then *n* =

(a) 11

(b) 10

(c) 9

(d) 8

94. The correlation between two variables x and y is found to be 0.4. What is the correlation between 2x and (–y)?

(a) 0.4

(b) –0.4

(c) 0.6

(d) None of these

95. Which of the following is not a test of adequacy in the context of index numbers?

(a) Unit test

(b) Square test

(c) Circular test

(d) Factor reversal test

96. Fisher's index number is called as ideal index number because it satisfies

(a) Factor reversal test

(b) Time reversal test

(c) Both factor and time reversal test

(d) Circular test

97. Circular test is satisfied by which of the following index?

(a) Laspeyre's index

(b) Paasche's index

(c) Fisher's index

(d) Simple geometric mean of price relatives

98. During this period, the salary of employees as per pay commission recommendations was received from ₹ 23,000 to ₹ 29,500. In real terms, an employee should get the following additional amount (upto the nearest whole number) to maintain their previous standard of living:

(a) ₹ 1,168

(b) ₹ 666

(c) ₹ 909

(d) ₹ 6,500

99. If Laspeyer's index is A and Fisher's index is B. Find the value of Paasche's index.

(a) $\frac{B^2}{A}$

(b) $\frac{A^2}{B}$

(c) $\frac{A}{B}$

(d) $\frac{2B}{A}$

100. 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