Mock Test Paper - Series II: May 2025

Date of Paper: 7th May 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. The ratio of the number of boys to the number of girls in a school of 720 students is 3: 5. If 18 new girls are admitted in the school, find how many new boys may be admitted so that the ratio of the number of boys to the number of girls may change to 2 : 3.

   (a) 42

   (b) 36

   (c) 72

   (d) 30

2. If p: q = r: s, implies q: p = s: r, then the process is called

   (a) Componendo.

   (b) Invertendo.

   (c) Alternendo

   (d) Dividendo.

3. If a:b = 4:5, find the value of (5a-3b): (6a + 3b)

   (a) 7:39

   (b) 15:39

   (c) 1:3

   (d) 5:39

4. The value of $(243)^{\frac{1}{5}}(128)^{\frac{1}{7}}$ is _____

   (a) 1

   (b) 6

(c) 2

(d) 3

5. The value of $\log_x (0.00001) = -5$, then x is

(a) 10

(b) 10^2

(c) 10^0

(d) none of these

6. If $\log x = \log_5 + 2 \log 3 - \frac{1}{2} \log 25$, then value of x is

(a) 8

(b) 9

(c) 10

(d) none of these

7. If $(4)^3 \times \left(\sqrt{2}\right)^8 = 2^n$, then n is

(a) 10

(b) 12

(c) 13

(d) none of these

8. The point of intersection between the straight lines $3x + 2y = 6$ and $3x - y = 12$ lie in

(a) 1st quadrant

(b) 2nd quadrant

(c) 3rd quadrant

(d) 4th quadrant

9. The sum of the digits of a two digit number is 10. If 18 be subtracted from it, the digits in the resulting number will be equal. The number is

(a) 37

(b) 73

(c) 64

(d) none of these

10. Solve for x, $4^x - 3.2^{x+2} + 2^5 = 0$

(a) 4, 8

(b) -2, -3

(c) 2, 6

(d) 2, 3

11. The value of $\sqrt{2+\sqrt{2+\sqrt{2}}}$+ ..... ∞ is equal to

(a) -2

(b) 2

(c) -2

(d) 0

12. The values of x for the equation $x^2 + 9x + 18 = 6 - 4x$ are

(a) (1, 12)

(b) (–1, –12)

(c) (1, –12)

(d) (–1,12)

13. A dealer has only ₹5760 to invest in fans (x) and sewing machines (y). The cost per unit of fan and sewing machine is ₹360 and ₹240 respectively. This can be shown by:

(a) 360x + 240y > 5760

(b) 360x + 240y < 5760

(c) 60x + 240y = 5760

(d) None of these.

14. The difference between Compound Interest and Simple Interest on a certain sum for 2 years at 6% p.a. is ₹ 13.50. Find the sum

(a) 3750

(b) 2750

(c) 4750

(d) None of these

15. Sequence of periodic payments/ receipts regularly over a period of time is called

(a) Perpetuity

(b) Annuity.

(c) Annuity regular.

(d) Annuity due.

16. A machine for which the useful life is estimated to be 5 years, Cost ₹ 5000 and Rate of depreciation is 10% p.a. The scrap value at the end of its life is

(a) 2952.45

(b) 2500.00

(c) 3000.00

(d) 2559.50

17. If A = ₹ 1000, n = 2 years, R = 6% p.a. compound interest payable half-yearly then principal (P) is.

(a) ₹ 888.80

(b) ₹ 880

(c) 800

(d) None of these

18. The difference between compound and simple interest at 5% per annum for 4 years on ₹ 20000 is

(a) ₹ 250

(b) ₹ 277

(c) ₹ 300

(d) ₹ 310

19. Find the future value of an annuity of ₹ 500 is made annually for 7 years at interest rate of 14% compounded annually. Given that $(1.14)^7 = 2.5023$.

(a) ₹ 5635.25

(b) ₹ 5365.25

(c) ₹ 6535.25

(d) ₹ 6355.25

20. The effective rate of interest corresponding to a nominal rate 3% p.a payable half yearly is

(a) 3.2% p.a.

(b) 3.25% p.a.

(c) 3.0225% p.a.

(d) none of these

21. What will be the final value of investment for the principal value of ₹ 80,000 for 4 year @ 10% p.a. rate of interest?

(a) 83,200

(b) ₹ 112,000

(c) 82,300

(d) None of these.

22. Find the present value of ₹ 500 due 10 years hence when interest of 10% is compounded half yearly?

(a) ₹ 188.40

(b) ₹ 193.94

(c) ₹ 138.94

(d) ₹ 50.00

23. If the value of a car gets depreciated by 20% per year, estimated value at the end of five year is _____, if its present value is ₹ 24,000.

(a) 7864.32

(b) 7684.23

(c) 8764.32

(d) 6789.32

24. A person opened a savings bank account 4 months ago, which has now a balance of ₹ 21,315. If the bank pays 4.5% simple interest, how much money was deposited by him, initially?

(a) ₹ 21,000

(b) ₹ 20,000

(c) ₹ 15,000

(d) none of these

25. Find the present value of an annuity of ₹ 1,000 payable at the end of each year for 10 years, if the money is worth 5% effective.

(a) ₹ 7,724

(b) ₹ 7,000

(c) ₹ 8,000

(d) none of these

26. If six times the number permutations of n things taken 3 at a time is equal to seven times the number of permutations of (n – 1) things taken 3 at a time, find n.

(a) 21

(b) 20

(c) 15

(d) 27

27. In how many different ways can five persons stand in a line for a group photograph?

(a) 90

(b) 120

(c) 150

(d) 160

28. There are 5 speakers A, B, C, D and E. The number of ways in which A will speak always before B is

(a) 24

(b) $\lfloor 4 \times \lfloor 2$

(c) $\lfloor 5$

(d) none of these

29. In _____ ways can 4 Americans and 4 English men be seated at a round table so that no 2 Americans may be together?

(a) $4! \times 3!$

(b) ${}^4P_4$

(c) $3 \times {}^4P_4$

(d) ${}^4C_4$

30. The ways of selecting 4 letters from the word EXAMINATION is

(a) 136

(b) 130

(c) 125

(d) none of these

31. The 7^{th} term of the series 6, 12, 24…… nth term is_____.

(a) 384

(b) 834

(c) 438

(d) 854

32. The last term of the series x^2, x, 1, …. to 31 terms is _____ .

(a) x^{28}

(b) 1/x

(c) $1/x^{28}$

(d) $1/x^{30}$

33. If the A.M. and G.M. for two numbers are 6.50 and 6 respectively then the two numbers are

(a) 6 and 7

(b) 9 and 4

(c) 10 and 3

(d) 8 and 5

34. Let f(x) = $\frac{x^2-6x+9}{x-3}$, $x \neq 3$, f(3) = 0, then f(x) is

(a) Continuous at x = 3

(b) Discontinuous at x = 3

(c) Discontinuous for all x

(d) none of these

35. Find *f o g* for the functions f (x) = x^8, g(x) = $2x^2+1$

(a) $x^8 (2x^2+1)$

(b) x^8

(c) $2x^2+1$

(d) $(2x^2+1)^8$

36. If f (x) = $\frac{1}{x} - x$, f $\left(\frac{1}{2}\right)$ is

(a) 3/2

(b) 2/3

(c) 1

(d) 0

37. If f(x) = x^2+2, then the given function is

(a) odd function

(b) even function

(c) Neither odd nor even function

(d) None of these

38. Evaluate $\int_0^1 (2x^2 - x^3)\, dx$ and the value is

(a) 4/3

(b) 5/12

(c) – 4/3

(d) none of these

39. If $y = e^{\sqrt{2x}}$, $\frac{dy}{dx}$ is calculated as

(a) $\frac{e^{\sqrt{2x}}}{\sqrt{2x}}$

(b) $e^{\sqrt{2x}}$

(c) $\frac{e^{\sqrt{2}x}}{\sqrt{2x}}$

(d) none of these

40. Find $\frac{dy}{dx}$ when $y = 4x^3 + 8x^7$ at $x^2 = 2$

(a) 424

(b) 470

(c) 472

(d) none of these

41. If PAINT is coded as 74128 and EECEL is coded as 93596, how is ACCEPT is coded

(a) 457958

(b) 459758

(c) 455978

(d) 459578

42. If each of the letters assigned an even numeric value A= 2, B= 4 and so on , what will be the total value of the letters for the word INDIA ?

(a) 72

(b) 86

(c) 74

(d) 94

43. Find next letter series BMO, EOQ, HQS, _? _

(a) SOW

(b) LMN

(c) KSU

(d) SOV

44. Find next series 8,13, 18, 23, ?, 33, 38

(a) 28

(b) 23

(c) 26

(d) 33

45. Find missing term of the next series 7, 12, 22,37, ?, 82,112, 147

(a) 50

(b) 58

(c) 57

(d) 156

46. Shobha is the niece of Ashish. Ashish's mother is Priya. Kamla is Priya's mother. Kamla's husband is Hari. Krishna is the mother-in-law of Hari. How is Shobha related to Hari?

(a) Daughter

(b) Great Grand daughter

(c) Grandniece

(d) Great Grandson's daughter

47. Pointing to a boy in a photograph, Neena said, "He is the son of my grandmother's only daughter". How is Neena related to the boy?

(a) Mother

(b) Aunt

(c) Grand Mother

(d) Sister

48. Rampal told Arjun, "Yesterday I defeated the only brother of the daughter of my grandmother." Whom did Rampal defeat?

(a) Son

(b) Father

(c) Brother

(d) Father-in-law

49. A # B means 'A is the brother of B' A @ B means 'A is the daughter of B' A & B means 'A is the husband of B' A % B means 'A is the wife of B' If G % M # L @ P & C @ B, then how is L related to B?

(a) Sister

(b) Grand daughter

(c) Daughter-in-law

(d) Daughter

50. A is son of C while C and Q are the sisters to one another. Z is the mother of Q. If P is the son of Z, Which one of the following statements is correct ?

(a) Q is the grandfather of A

(b) P is the maternal uncle of A

(c) P is the cousin of A

(d) Z is the brother of C

51. Kailash faces towards north. Turning to his right, he walks 25 metres. He then turns to his left and walks 30 metres. Next, he moves 25 metres to his right. He then turns to his right again and walks 55 metres. Finally, he turns to the right and moves 40 metres. In which direction is he now from his starting point?

(a) south-west

(b) south

(c) North-West

(d) South-East

52. Asha moved a distance of 75 metres towards the north. She then turned to the left and walking for about 25 metres, turned left again and walked 80 metres. Finally, she turned to the right at an angle of 45 degrees. In which direction was she finally moving

(a) North-East

(b) North-West

(c) South

(d) South-West

53. Maya starts from point T, walks straight to point U, which is 4 ft away. She turns left at 90° and walks to W, which is 4 ft away, turns 90° right and goes 3 ft to P, turns 90° right and walks 1 ft to Q, turns left at 90° and goes to V, which is 1 ft away and once again turns 90° right and goes to R, 3 ft away. What is the distance between T and R?

(a) 4 ft

(b) 5 ft

(c) 7 ft

(d) 8 ft

54. P, Q, R, S, T, U, V and W are sitting round the circle and are facing the centre: P is second to the right of T who is the neighbour of R and V. S is not the neighbour of P. V is the neighbour of U. Q is not between S and W. W is not between U and S. Question - Which one is immediate right to the V ?

(a) P

(b) U

(c) R

(d) T

55. If North-East is called East, North is called North-East and North-West is called North, then what will south be called as?

(a) West

(b) South-West

(c) North-West

(d) East Correct

(56-58) Directions to solve

(i) 8 persons E, F, G, H, J, K and L are seated around a square table two on each side.

(ii) There are three ladies who are not seated next to each other.

(iii) J is between L and F

(iv) G is between I and F

(v) H, a lady member second to the left of J

(vi) F, a male member is seated opposite to E, a lady member.

(vii) There is a lady member between F and I.

56. Who among following is to the immediate left of F?

(a) G

(b) I

(c) J

(d) H

57. How many persons are seated between K and F?

(a) 1

(b) 2

(c) 3

(d) 4

58. Who among the following are three lady members?

(a) EHJ

(b) EFG

(c) EHG

(d) CHJ

59. In an Exhibition seven cars of different companies - Cadillac, Ambassador, Fiat, Maruti, Mercedes, Bedford and Fargo are standing facing to east in the following order :

1. Cadillac is next to right of Fargo.
2. Fargo is fourth to the right of Fiat.
3. Maruti car is between Ambassador and Bedford.
4. Fiat which is third to the left of Ambassador, is at one end.

Which of the cars are on both the sides of cadillac car?

(a) Ambassador and Maruti

(b) Maruti and Fiat

(c) Fargo and Mercedes

(d) Ambassador and Fargo

60. Which of the following statement is correct?

(a) Maruti is next left of Ambassador.

(b) Bedford is next left of Fiat.

(c) Bedford is at one end.

(d) Fiat is next second to the right of Maruti.

61. When the data are classified in respect of successive time points, they are known as_____.

(a) Chronological data

(b) Geographical data

(c) Ordinal data

(d) Cordinal data

62. The following data relate to the incomes of 86 persons: What is the percentage of persons earning more than ₹ 1500?

Income in ₹	No. of persons
500–999	5
1000–1499	28
1500–1999	36
2000–2499	7

(a) 50

(b) 45

(c) 60

(d) 40

63. Bivariate Data are the data collected for

(a) Two variables.

(b) More than two variables.

(c) Two variables at the same point of time

(d) Two variables at different points of time.

64. _____ is the upper part of the table, describing the columns and sub columns.

(a) Box head

(b) Caption

(c) Stub

(d) Body

65. 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

66. Standard error can be described as

(a) The error committed in sampling.

(b) The error committed in sample survey.

(c) The error committed in estimating a parameter.

(d) Standard deviation of a statistic.

67. Which of the following measures of central tendency is based on only 50% of the central values?

(a) Mean

(b) Mode

(c) Median

(d) both (a) and (b)

68. The median of the following items, 6, 10, 4, 3, 9 11, 22, 18 is _____

(a) 10

(b) 9

(c) 9

(d) 10.5

69. For a moderately skewed distribution, which of the following relationship holds?

(a) Mean – Mode = 3 (Mean – Median)

(b) Median – Mode = 3 (Mean– Median)

(c) Mean – Median = 3 (Mean – Mode)

(d) Mean – Median = 3 (Median – Mode)

70. The mean salary for a group of 40 female workers is 5200 per month and that for a group of 60 male workers is 6800 per month. What is the combined mean salary?

(a) 6500

(b) 6200

(c) 6160

(d) 6100

71. The quartile deviation of a normal distribution with mean 10 and standard deviation 4 is

(a) 0.675.

(b) 67.50.

(c) 2.70.

(d) 3.20.

72. What is the coefficient of range for the following wages of 8 workers? ₹ 80, ₹ 65, ₹ 90, ₹ 60, ₹ 75, ₹70, ₹ 72, ₹85.

(a) ₹ 35

(b) ₹ 25

(c) 30

(d) 20

73. The third decile for the numbers 15, 10, 20, 25, 18, 11, 9, 12 is

(a) 13

(b) 10.70

(c) 11

(d) 11.50

74. The coefficient of mean deviation about mean for the first 9 natural numbers is

(a) 200/9

(b) 80

(c) 4/9

(d) 50

75. The median of 27,30,26,44,42,51,37 is

(a) 30

(b) 42

(c) 44

(d) 37

76. The mean weight for a group of 40 female students is 42 kg and that for a group of 60 male students is 52 kg. What is the combined mean weight?

(a) 46

(b) 47

(c) 48

(d) 49

77. If the relationship between x and y is given by 4x– 6y =13 and if the median of x is 16. Find median of y.

(a) 7.50

(b) 8

(c) 8.50

(d) none of these

78. If the quartile deviation of x is 8 and 3x + 6y = 20, then the quartile deviation of y is

(a) 4

(b) 3

(c) 5

(d) none of these

79. Find D_6 for the following observations: 7,9,5,4,10,15,14,18,6,20

(a) 11.40

(b) 12.40

(c) 13.40

(d) 13.80

80. The theory of the compound probability states that for any two events A and B:

(a) $P(A \cap B) = P(A) \times P(B)$

(b) $P(A \cap B) = P(A) \times P(B/A)$

(c) $P(A \cup B) = P(A) \times P(B)$

(d) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

81. The odds are 9:5 against a person who is 50 years living till he is 70 and 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) 11/14

(b) 22/49

(c) 31/49

(d) 35/49

82. The probability that a trainee will remain with a company is 0.8. The probability that an employee earns more than ₹ 20,000 per month is 0.4. The probability that an employee, who was a trainee and remained with the company or who earns more than ₹ 20,000 per month is 0.9. What is the probability that an employee earns more than ₹ 20,000 per month given that he is a trainee, who stayed with the company?

(a) 5/8

(b) 3/8

(c) 1/8

(d) 7/8

83. If x be the 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

84. The A.M. between two numbers is 34 and their G.M. is 16, the numbers are?

(a) 4, 64

(b) 4, 32

(c) 32, 64

(d) none of these

85. The probability that a card drawn at random from the pack of playing cards may be either a queen or an ace is

(a) 2/13

(b) 11/13

(c) 9/13

(d) none of these

86. If the probability of a horse A winning a race is 1/6 and the probability of a horse B winning the same race is ¼, _____ is the probability that one of the horses will win.

(a) 1/3

(b) 7/12

(c) 1/12

(d) 1/7

87. What is the chance of picking a heart or a queen not of heart from a pack of 52 cards?

(a) 17/52

(b) 1/13

(c) 4/13

(d) 3/13

88. A class consists of 10 boys and 20 girls of which half the boys and half the girls have blue eyes. Find the probability that a student chosen random is a boy and has blue eyes.

(a) 1/6

(b) 3/5

(c) 1/2

(d) none of these

89. Variance of a binomial distribution is always _____ its mean.

(a) Equal to

(b) More than

(c) Less than

(d) None of these

90. The interval (μ - 3ð, μ + 3ð) 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

91. A manufacture, 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:

(a) 7

(b) 13

(c) 9

(d) 11

92. For binomial distribution E(x) = 2, V (x) = 4/3. Find the value of n.

(a) 3

(b) 4

(c) 5

(d) 6

93. If Standard deviation of a poisson distribution is 2, then its

(a) Mode is 2

(b) Mode is 4

(c) Mode are 3 and 4

(d) Modes are 4 and 5

94. In a normal distribution quartile deviation is 6, the standard deviation will be

(a) 4

(b) 9

(c) 7.5

(d) 6

95. Suppose a business executive was earning ₹ 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) ₹ 2096

(b) ₹ 2906

(c) ₹ 2106

(d) ₹ 2306

96. Bowley's index number is expressed in terms of:

(a) $\frac{\text{Laspyre's + Paasche's}}{2}$

(b) $\frac{\text{Laspyre's} \times \text{Paasche's}}{2}$

(c) $\frac{\text{Laspyre's - Paasche's}}{2}$

(d) None of these

97. In the data group Bowley's and Laspeyre's Index number is as follows. Bowley's Index number = 150, Lapeyre's Index number = 180 then Paesche's Index number is

(a) 120

(b) 30

(c) 165

(d) None of these

98. Consumer price index is commonly known as

(a) Chain Based Index

(b) Ideal Index

(c) Wholesale price index

(d) Cost of living index

99. What is the formula for calculating the detailed 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

100. The simple index number for the Current year using simple aggregative method for the following data is _____

Commodity	Year Prices (P_0)	Current Year Prices (P_1)
Wheat	80	100
Rice	100	150
Gram	120	252
Pulses	200	300

(a) 200

(b) 150

(c) 240

(d) 160