Mock Test Paper - Series II: January, 2025

Date of Paper: 3rd January 2025

Time of Paper: 10.30 A.M. to 12.30 P.M.

FOUNDATION COURSE

PAPER – 3: QUANTITATIVE APTITUDE

Time: 2 hours **Marks: 100**

1. The ratio of the prices of two Fans was 16: 23. Two years later when the price of the first has increased by 10% and that of the second by ₹ 477, the ratio of the prices becomes 11: 20. Find the original prices of the two Fans.
   (a) ₹ 848, ₹ 1,219.
   (b) ₹ 838, ₹ 1,119.
   (c) ₹ 828, ₹ 1,219.
   (d) ₹ 848 ₹ 1,229.
2. If a: b = 3: 4, the value of (2a+3b): (3a+4b) is
   (a) 54: 25
   (b) 8: 25
   (c) 17: 24
   (d) 18: 25
3. The third proportional to 49 and 21
   (a) 6
   (b) 9
   (c) 12
   (d) 28
4. Given that $\log_{10}2 = x$ and $\log_{10}3 = y$, the value of $\log_{10}60$ is expressed as
   (a) x – y + 1
   (b) x + y + 1
   (c) x – y – 1
   (d) none of these
5. What should be added to $4x^2+4x$, so that it becomes perfect square?
   (a) 4
   (b) 2
   (c) 1
   (d) 1/2

6. The sum of two numbers is 62 and their product is 960. The sum of their reciprocals is

   (a) $\frac{31}{480}$

   (b) $\frac{29}{480}$

   (c) $\frac{61}{960}$

   (d) $\frac{41}{960}$

7. Three persons Mr. Roy, Mr. Paul and Mr. Singh together have ₹ 51. Mr. Paul has ₹ 4 less than Mr. Roy and Mr. Singh has got ₹ 5 less than Mr. Roy. They have the money as.

   (a) (₹ 20, ₹ 16, ₹ 15)

   (b) (₹ 15, ₹ 20, ₹ 16)

   (c) (₹ 25, ₹ 11, ₹ 15)

   (d) none of these

8. The roots of the quadratic equation $x^2-4x+k = 0$ are coincident if

   (a) k = 4

   (b) k = 3

   (c) k = 2

   (d) k = 1

9. The three roots of the cubic equation $x^3+9x^2-x-9=0$ is

   (a) -1, +1, and 9

   (b) -1, +1 and -9

   (c) -1, +1 and 1/9

   (d) -1, +1 and 1/9

10. Given the quadratic equation $2x^{\frac{1}{3}} + 2x^{-\frac{1}{3}}=5$. Its roots are.

    (a) 2 and ½

    (b) 4 and ¼

    (c) 8 and 1/8

    (d) 16 and 1/16

11. The wages of 8 men and 6 boys amount to ₹ 33. If 4 men earn ₹ 4.50 more than 5 boys determine the wages of each man and boy.

    (a) (₹ 1.50, ₹ 3)

(b) (₹ 3, ₹ 1.50)

(c) (₹ 2.50, ₹ 2)

(d) (₹ 2, ₹ 2.50)

12. The roots of the equation x^2+ (2p–1)x + p= 0 are real if.

(a) p ≥ 1

(b) p ≤ 4

(c) p ≥ 1/4

(d) p ≤¼

13. On solving the inequalities $2x + 5y \leq 20, 3x + 2y \leq 12$, $x \leq 0$, $y \leq 0$, we get the following situation

(a) (0, 0), (0, 4), (4, 0) and (20/11, 36/11)

(b) (0, 0), (10, 0), (0, 6) and (20/11,36/11)

(c) (0, 0), (0, 4), (4, 0) and (2, 3)

(d) (0, 0), (10, 0), (0, 6) and (2, 3)

14. On the average experienced person does 5 units of work while a fresh one 3 units of work daily but the employer has to maintain an output of at least 30 units of work per day. This situation can be expressed as,

(a) 5x + 3y ≤30

(b) 5x + 3y >30

(c) 5x+3y≥30 x ≥0, y ≥0

(d) none of these

15. A sum of ₹ 46,875 was lent out at simple interest and at the end of 1 year 8 months the total amount was ₹ 50,000. Find the rate of interest percent per annum.

(a) 5%

(b) 6%

(c) 4%

(d) 8%

16. A = ₹ 5,200, R = 5% p.a., T = 6 years, P will be

(a) ₹ 2,000

(b) ₹ 3,880

(c) ₹ 3,000

(d) none of these

17. The time by which a sum of money would treble itself at 8% p. a C. I is

(a) 14.28 years

(b) 14 years

(c) 12 years

(d) none of these.

18. The present value of an annuity of ₹ 80 for 20 years at 5% p.a is [Given $(1.05)^{20}$= 2.6533]

(a) ₹ 997 (appx.)

(b) ₹ 900

(c) ₹ 1,000

(d) none of these

19. A person bought a house paying ₹ 20,000 cash down and ₹ 4,000 at the end of each year for 25 yrs. at 5% p.a. C.I. The cash down price is[Given $(1.05)^{25}$= 3.386355]

(a) ₹ 75,000

(b) ₹ 76,000

(c) ₹ 76,375.80

(d) none of these.

20. A man purchased a house valued at ₹ 3,00,000. He paid ₹ 2,00,000 at the time of purchase and agreed to pay the balance with interest at 12% per annum compounded half yearly in 20 equal half yearly instalments. If the first instalment is paid after six months from the date of purchase then the amount of each instalment is.

(a) ₹ 8,718.45

(b) ₹ 8,769.21

(c) ₹ 7,893.13

(d) none of these

21. A person desires to create a fund to be invested at 10% CI per annum to provide for a prize of ₹ 300 every year. Using V = a/I find V and V will be

(a) ₹ 2,000

(b) ₹ 2,500

(c) ₹ 3,000

(d) none of these.

22. A person invests ₹ 500 at the end of each year with a bank which pays interest at 10% p.a C.I. annually. The amount standing to his credit one year after he has made his yearly investment for the 12^{th} time is.[Given $(1.1)^{12}$= 3.1384]

(a) ₹ 11,761.36

(b) ₹ 10,000

(c) ₹ 12,000

(d) none of these

23. A machine depreciates at 10% of its value at the beginning of a year. The cost and scrap value realized at the time of sale being ₹ 23,240 and ₹ 9,000 respectively. For how many years the machine was put to use?

(a) 7 years

(b) 8 years

(c) 9 years

(d) 10 years

24. The compound interest on half-yearly rests on ₹ 10,000 the rate for the first and second years being 6% and for the third year 9% p.a. is

(a) ₹2,200

(b) ₹2,287

(c) ₹ 2,285

(d) ₹2290.84

25. The present value of ₹ 10,000 due in 2 years at 5% p.a. compound interest when the interest is paid on half-yearly basis is

(a) ₹ 9,070

(b) ₹ 9,069

(c) ₹ 9,060

(d) None

26. 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

27. The number of ways the letters of the word ‘COMPUTER’ can be rearranged is

(a) 40,320

(b) 40,319

(c) 40,318

(d) none of these

28. 5 persons are sitting in a round table in such way that Tallest Person is always on the right-side of the shortest person; the number of such arrangements is

(a) 6

(b) 8

(c) 24

(d) none of these

29. An examination paper with 10 questions consists of 6 questions in Algebra and 4questions in Geometry. At least one question from each section is to be attempted. In how many ways can this be done?

(a) 945

(b) 100

(c) 1000

(d) none of these

30. If 12 school teams are participating in a quiz contest, then the number of ways the first, second and third positions may be won is

(a) 1,230

(b) 1,320

(c) 3,210

(d) none of these

31. Three numbers are in AP and their sum is 21. If 1, 5, 15 are added to them respectively, they form a G. P. The numbers are:

(a) 5, 7, 9

(b) 9, 5, 7

(c) 7, 5, 9

(d) none of these.

32. The sum of three numbers in G.P. is 70. If the two extremes by multiplied each by 4 and the mean by 5, the products are in AP. The numbers are

(a) 12, 18, 40

(b) 10, 20, 40

(c) 40, 20, 15

(d) none of these

33. The first and the last term of an AP are –4 and 146. The sum of the terms is 7171. The number of terms is

(a) 101

(b) 100

(c) 99

(d) none of these

34. (AUB)' is equal to

(a) (A' UB)'

(b) $A' \cap B'$

(c) A'U B'

(d) none of these

35. If f(x) = $\frac{x}{1-x}$ and g(x) = $\frac{x-1}{x}$, then gof(x) is

(a) x–1

(b) x

(c) 1/x

(d) none of these

36. A town has a total population of 50,000. Out of it 28,000 read the newspaper X and 23,000 read Y while 4,000 read both the papers. The number of persons not reading X and Y both is

(a) 2,000

(b) 3,000

(c) 2,500

(d) none of these

37. $\int e^{ax}\, dx$

(a) $e^x + c$

(b) $\frac{e^{ax}}{a} + c$

(c) log x + c

(d) $e^{ax} + c$

38. The gradient of the curve $y = 2x^3 - 5x^2 - 3x$ at x = 0 is

(a) 3

(b) –3

(c) 1/3

(d) none of these

39. Evaluate $\int_1^4 (2x+5)\, dx$ and the value is

(a) 3

(b) 10

(c) 30

(d) None of these.

40. If $f(x) = x^2 - 6x + 8$ then f'(5) – f'(8) is equal to

(a) f'(2)

(b) 3. f’(2)

(c) 2. f’(2)

(d) none of these.

41. Find the wrong term of the series 121, 143, 165, 186, 209

(a) 143

(b) 165

(c) 186

(d) 209

42. Find missing term 7, 26, 63, 124, 215, 342?

(a) 391

(b) 421

(c) 481

(d) 511

43. Find odd man out of the series 145, 197, 257, 325,399

(a) 145

(b) 399

(c) 257

(d) 325

44. Find missing term of the alphabet series ABD, DGK, HMS, MTB, SBL?

(a) XKW

(b) ZAB

(c) ZKU

(d) ZKW

45. In a certain language, FLOWER is coded UOLDVI, then how is TERMINAL coded in that language?

(a) FLKPMROZ

(b) GVINRMZO

(c) RVNIGLKA

(d) MNIVGYEO

46. Pointing to a lady, a man said, “The son of her only brother is the brother of my wife”. How is lady is related to man?

(a) Mother’s sister

(b) Grandmother

(c) Sister of father-in-law

(d) Maternal Aunt

47. A family has a man, his wife, their four sons and their wives. The family of every son also 3 sons and one daughter. Find out the total number of male members in the whole family?

(a) 4

(b) 8

(c) 12

(d) 17

48. Given that

1. A is mother of B.
2. C is son of A.
3. D is brother of E.
4. E is daughter of B.

The grandmother of D is

(a) A

(b) B

(c) C

(d) E

49. Read the following information and answer the question

'A+B' means 'A is the daughter of B'.

'A ×B' means 'A is the son of B'.

'A – B' means 'A is the wife of B'.

If P × Q-S, which of the following is true

(a) S is wife of B

(b) S is father of P

(c) P is daughter of Q

(d) Q is father of P

50. In a certain code, TELEPHONE is written as ENOHPELET. How is ALIGATOR written

(a) ROTAGILA

(b) ROTAGAIL

(c) ROTAGILE

(d) ROTEGILA

Read the following information. (51-52)

I. In a family six members A,B,C, D, E and F , there are two married couples.

II. D is the Grand mother of A and mother B.

III. C is wife of B and mother of F

IV. F is grand daughter of E

51. Who is C to A

(a) Daughter

(b) Grandmother

(c) Mother

(d) Cannot be determined

52. How many male members are in the family

(a) Two

(b) Three

(c) Four

(d) Cannot be determined

53-55. Read the following information carefully and then answer the questions 53,54 and 55.

Six friends A, B, C, D, E and F are sitting on a bench, facing towards North.

I. A is sitting next to B.

II. C is sitting left to D.

III. D is not sitting with E.

IV. E is on the left end of the bench.

V. C is third position from right.

VI. A is on the right side of B and to the right side of E.

VII. A and C are sitting together.

VIII. F is sitting Right of D.

53. At what position A is sitting?

(a) Between B and C

(b) Between D and C

(c) Between E and D

(d) Between C and E

54 What is position of B?

(a) Second from right

(b) Centre

(c) Extreme left

(d) Second from left

55. What is position of D?

(a) Extreme from left

(b) Extreme right

(c) Third from left

(d) Second from right.

56. Six Children 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 of end, but D is sitting 3rd left of E. Which of the following is right of D.

(a) A

(b) F

(c) E

(d) C

57. A man is facing towards East and turns through 45° clockwise again 180° clock wise and then turns through 270° anti-clock wise. In which direction is he facing now?

(a) West

(b) North- East

(c) South

(d) South-West

58. Facing towards North, Ravi walks 35 m. He then turns left and walks 55 m. He again turns left and walks 35 m. How far is from original position and towards which direction.

(a) 30 m, North

(b) 20 m, East

(c) 55 m, West

(d) 20 m, South

59. Ram start moving from a point, facing in East direction. After walking 15 m, he turned to his left and walked 25m, before turning to his right. Then, he walked a distance of 35 m, then turned to his right and stop after walking further a distance of 25 m. Find how far Ram is from his starting point.

(a) 20 m

(b) 50 m

(c) 15 m

(d) 25 m

60. 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

61. Find the number of observations between 250 and 300 from the following data:

Value:	More than 200	More than 250	More than 300	More than 350
No. of observations:	56	38	15	0

(a) 56

(b) 23

(c) 15

(d) 8

62. The difference between Upper limit and lower limit of a class is called

(a) Class Interval

(b) Class boundaries

(c) Mid-Value

(d) Frequency

63. 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

64. Median of a distribution can be obtained from

(a) Frequency polygon

(b) Histogram

(c) Less than type ogives

(d) None of these.

65. For open-end classification, which of the following is the best measure of central tendency?

(a) AM

(b) GM

(c) Median

(d) Mode

66. In case of an even number of observations which of the following is median?

(a) Any of the two middle-most value

(b) The simple average of these two middle values

(c) The weighted average of these two middle values

(d) Any of these

67. Standard Error can be described as

(a) The error committed in sampling

(b) The error committed in a sample survey

(c) The error committed in estimating parameter.

(d) Standard deviation of statistic.

68. Two variables x and y are given by y= 2x – 3. If the median of x is 20, what is the median of y?

(a) 20

(b) 40

(c) 37

(d) 35

69. If the relationship between two variables u and v are given by 2u + v + 7 = 0 and if the AM of u is 10, then the AM of v is

(a) 17

(b) –17

(c) –27

(d) 27

70. The appropriate measure of dispersion for open-end classification is

(a) Standard deviation

(b) Mean deviation

(c) Quartile deviation

(d) All these measures

71. If R_x and R_y denote ranges of x and y respectively where x and y are related by 3x+2y+10=0, what would be the relation between x and y?

(a) Rx = Ry

(b) 2 Rx= 3 Ry

(c) 3 Rx= 2 Ry

(d) Rx= 2 Ry

72. If x and y are related by 2x+3y+4 = 0 and SD of x is 9, then SD of y is

(a) 22

(b) 6

(c) 5

(d) 24

73. The quartiles of a variable are 45, 52 and 75 respectively. Its quartile deviation is

(a) 15

(b) 20

(c) 25

(d) 8.30

74. If x and y are related as 3x+4y = 20 and the quartile deviation of x is 16, then the quartile deviation of y is

(a) 16

(b) 14

(c) 10

(d) 12

75. If x and y are related by y = 2x+ 5 and the SD and AM of x are known to be 5 and 10respectively, then the coefficient of variation of y is

(a) 25

(b) 30

(c) 40

(d) 20

76. What is spurious correlation?

(a) It is a bad relation between two variables.

(b) It is very low correlation between two variables.

(c) It is the correlation between two variables having no causal relation.

(d) It is a negative correlation.

77. When r = 1, all the points in a scatter diagram would lie

(a) On a straight line directed from lower left to upper right

(b) On a straight line directed from upper left to lower right

(c) On a straight line

(d) Both (a) and (b).

78. If the coefficient of correlation between two variables is 0.8 then the percentage of variation unaccounted for is

(a) 70%

(b) 30%

(c) 51%

(d) 36%

79. If for two variable x and y, the covariance, variance of x and variance of y are 40, 16 and 256 respectively, what is the value of the correlation coefficient?

(a) 0.01

(b) 0.625

(c) 0.4

(d) 0.5

80. If the relation between x and u is $3x + 4u + 7 = 0$ and the correlation coefficient between x and y is –0.6, then what is the correlation coefficient between u and y?

(a) –0.6

(b) 0.8

(c) 0.6

(d) –0.8

81. Three events A, B and C are mutually exclusive, exhaustive and equally likely.

What is the probably of the complementary event of A?

(a) 1/3

(b) 2/3

(c) 3/7

(d) 1

82. What is the chance of picking a spade or an ace not of spade from a pack of 52cards?

(a) 4/13

(b) 2/13

(c) 3/26

(d) 3/18

83. Find the probability that a four-digit number comprising the digits 2, 5, 6 and 7 would be divisible by 4.

(a) 1/4

(b) 1/3

(c) 1/2

(d) 1

84. The probability that an Accountant's job applicant has a B. Com. Degree is 0.85, that he is a CA is 0.30 and that he is both B. Com. and CA is 0.25 out of 500 applicants, how many would be B. Com. or CA?

(a) 0.25

(b) 0.30

(c) 0.10

(d) 0.90

85. Rupesh is known to hit a target in 5 out of 9 shots whereas David is known to hit the same target in 6 out of 11 shots. What is the probability that the target would be hit once they both try?

(a) 79/99

(b) 10/13

(c) 14/26

(d) 13/18

86. In connection with a random experiment, it is found that

P(A) = 2/3, P(B) =3/5 and P(AUB) = 5/6, find P(A/B)

(a) 7/18

(b) 1/13

(c) 5/18

(d) 13/18

87. In a business venture, a man can make a profit of ₹ 50,000 or incur a loss of ₹ 20,000. The probabilities of making profit or incurring loss, from the past experience, are known to be 0.75 and 0.25 respectively. What is his expected profit?

(a) ₹ 33,500

(b) ₹ 34,500

(c) ₹ 35,500

(d) ₹ 32,500

88. Find the probability of a success for the binomial distribution satisfying the following relation

4 P (x = 4) = P (x = 2) and having the parameter n as six.

(a) 1/3

(b) 1/2

(c) 1/5

(d) 1/8

89. An experiment succeeds thrice as after it fails. If the experiment is repeated 5times, what is the probability of having no success at all?

(a) 1/1023

(b) 1/1024

(c) 1/1005

(d) 1/1008

90. If the two quartiles of a normal distribution are 47.30 and 52.70 respectively, what is the mode of the distribution? Also find the mean deviation about median of this distribution.

(a) 3.80

(b) 3.40

(c) 3.20

(d) 4.20

91. X follows normal distribution with mean as 50 and variance as 100. What is $P(x \geq 60)$? [Given $\varphi(1) = 0.8413$]

(a) 0.20

(b) 0.40

(c) 0.16

(d) 0.30

92. Number of misprints per page of a thick book follows:

(a) Normal distribution

(b) Poisson distribution

(c) Binomial distribution

(d) Standard normal distribution

93. If for a Poisson variable X, f(2) = 3 f(4), what is the variance of X?

(a) 2

(b) 4

(c) $\sqrt{2}$

(d) 3

94. If the points of inflexion of a normal curve are 40 and 60 respectively, then its mean deviation is:

(a) 40

(b) 45

(c) 50

(d) 60

95. Fisher's index number satisfies the _____ tests

(a) Time Reversal Test

(b) Factor Reversal Test

(c) both

(d) none

96. Fisher's ideal index number is:

(a) The Median of Laspeyre's and Paasche's index numbers

(b) The Arithmetic Mean of Laspeyre's and Paasche's index numbers

(c) The Geometric Mean of Laspeyre's and Paasche's index numbers

(d) None of these

97. If r = 0.6 then coefficient of non-determination is:

(a) 0.4

(b) -0.6

(c) 0.36

(d) 0.64

98. The Cost-of-Living Index (CLI) is always

(a) Weighted Index

(b) Price Index

(c) Quantity Index

(d) None of these

99. The Paasches and Fishers index numbers are 169 and 156 respectively, then Laspyre's Index number is:

(a) 144

(b) 152

(c) 148

(d) 151.5

100. The whole sale price index number or agricultural commodities in a given region at a given date is 280. The percentage increase in prices of agricultural commodities over the base year is:

(a) 380

(b) 280

(c) 180

(d) 80