

CA FOUNDATION
MATHS
QUESTION PAPER DEC – 2022
(BASED ON MEMORY)

1. If $A = \{1, 2, 3, 4, 5, 7, 8, 9\}$ and $B = \{2, 4, 6, 7, 9\}$ then how many proper subset of $A \cap B$ can be created
 - A. 16
 - B. 15
 - C. 32
 - D. 31
2. Find the area under the curve $f(x) = x^2 + 5x + 2$ with the limits 0 to 1
 - A. 3.833
 - B. 4.388
 - C. 4.833
 - D. 3.338
3. If p^{th} term of an AP is q and its q^{th} term is P , then what will be the value of $(p + q)^{\text{th}}$ term?
 - A. 0
 - B. 1
 - C. $p + q - 1$
 - D. $2(p + q - 1)$
4. The maximum and minima of the function $y = 2x^2 - 15x^2 + 36x + 10$ occurs respectively at
 - A. $x = 2$ and $x = 3$
 - B. $x = 1$ and $x = 3$
 - C. $x = 3$ and $x = 2$
 - D. $x = 3$ and $x = 1$
5. It means (X') is = 10 mode (Z) is -7 , then final our the value of median (M)
 - A. 9
 - B. 17
 - C. 3
 - D. 4.33
6. Which one of the following is a source of primary data?
 - A. Government records
 - B. Research Articles

C. Journals

D. Questionnaire filled by enumerators

7. If the coefficient of variant and standard deviation are 30 and 12 respectively, then the arithmetic mean of the distribution is
- A. 40
 - B. 36
 - C. 25
 - D. 19
8. _____ is based on all the observations and _____ is based on the central fifty percent of the observations.
- A. Mean deviation, Range
 - B. Mean Deviation, quartile deviation
 - C. Range, standard deviation
 - D. Quartile deviation, standard deviation
9. The relationship between two variables x and y is given by $4x - 10y = 20$. If the median value of the variable x is 10 then what is median value of variable y ?
- A. 1.0
 - B. 2.0
 - C. 3.0
 - D. 4.0
- 10.
- 11.
12. Fisher's index number is called an ideal index number because it's satisfies
- A. Factor reversal test
 - B. Tune reversal test
 - C. Both factor and time reversal test
 - D. Circular test
13. Laspeyre's index is 119 and Passche's index is 112 then Fisher's Index number will be:
- A. 113.99
 - B. 115.45
 - C. 115.89
 - D. 151.95

14. 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
15. Let $A = (1, 2, 3)$ and consider the relation $R = \{(1,1), (2,2), (3,3), (1,2), (2,3), (1,3)\}$ Then R is:
- A. asymmetric and transitive
 - B. reflexive but not transitive
 - C. reflexive but not symmetric
 - D. neither symmetric, not transitive
16. There are 20 points in a plane area. How many triangles can be formed by these points if 5 points are collinear?
- A. 550
 - B. 560
 - C. 1130
 - D. 1140
17. In a G.P., 5th term is 27 and 8th term is 729. Find its 11th term.
- A. 729
 - B. 6561
 - C. 2187
 - D. 19683
18. If $y = x^4$, then dy/dx at $x = 1$ is equal to
- A. 0
 - B. 1
 - C. -1
 - D. 2
19. Suresh's sister is the wife of Ram, Ram is Rani's brother. Ram's father is Madhur. Sheetal is Ram's grandmother. Rema is sheetal's daughter-in-law. Rohit is Rani's brother's son. Who is Rohit to Suresh?
- A. Brother-in-law
 - B. Son
 - C. Brother
 - D. Nephew

20. Which is the left part of the table providing the description of the rows?
- A. Caption
 - B. Box head
 - C. Stub
 - D. Body
21. Which one of the following is not a method of measures dispersion?
- A. Standard deviation
 - B. Mean deviation
 - C. Range
 - D. Concurrent deviation method
22. There are six children playing football namely A, B, C, D, E and F. A & E are brothers. F is sister of E. C is the only son of A's uncle. B & D are daughters of the brother of C's father. How D is related to A?
- A. Uncle
 - B. Cousin
 - C. Niece
 - D. Sister
23. The suitable formula for computing the number of class intervals is :
- A. $3.322 \log N$
 - B. $0.322 \log N$
 - C. $1+3.322 \log N$
 - D. $1-3.322 \log N$
24. The equations of the two lines of regression are $4x + 3y + 7 = 0$ and $3x + 4y + 8 = 0$. Find the correlation coefficient between x and y
- A. -.075
 - B. 0.25
 - C. -0.92
 - D. 1.25
25. If the regression equation are $2x + 3y + 1 = 0$ and $5x + 6y + 1 = 0$, then Mean of x and y respectively are
- A. -1, -1
 - B. -1, 1
 - C. 1, -1
 - D. 2, 3

26. If $b_{yx} = 0.5$, $b_{xy} = 0.46$ then the value of correlation coefficient r is:
- A. 0.23
 - B. 0.25
 - C. 0.39
 - D. 0.48
27. The coefficient of ran correlation between the ranking of following 6 students in two subjects Mathematics and Statistics is:
- | | | | | | | |
|-------------|---|---|---|---|---|----|
| Mathematics | 3 | 5 | 8 | 4 | 7 | 10 |
| Statistics | 6 | 4 | 9 | 8 | 1 | 2 |
- A. 0.25
 - B. 0.35
 - C. 0.38
 - D. 0.20
28. A machine worth ₹4,90,740 is depreciated at 15% on its opening value each year. When its value would reduce to ₹2,00,750
- A. 5 years 5 months
 - B. 5 years 6 months
 - C. 5 years 7 months
 - D. 5 years 8 months
29. The number of ways 4 boys and 3 girls can be seated in a row so that they are alternate is:
- A. 12
 - B. 288
 - C. 144
 - D. 256
30. If ${}^n P_r = 3024$ and ${}^n C_r = 126$, then find n and r
- A. 9, 4
 - B. 10, 3
 - C. 12, 4
 - D. 11, 4
31. If ₹64 Amount to ₹83.20 in 2 years, what will ₹86 Amount to in 4 years at the same Rate percent [er annum?
- A. ₹127.60
 - B. ₹147.60
 - C. ₹145.34

- D. ₹117.60
32. How many 3 digit odd numbers can be formed using the digits 5, 6, 7, 8, 9, if the digits can be repeated?
- A. 55
B. 75
C. 65
D. 85
33. In a joint family, there are father, mother, 3 married sons and one unmarried daughter. Out of the sons, two have 2 daughters each and one has a son only. How many female members are there in the family?
- A. 3
B. 6
C. 9
D. 5
34. When Rani saw Vinit, she recollected that “ He is the brother of my grandfather’s son”. How is Rani related to Vinit?
- A. Aunt
B. Daughter
C. Sister
D. Niece
35. Annanya is mother of satya and Shyam is the son of Bhima. Shiva is brother of Annanya. If Satya is sister of Shyam, how Bhima is related to Shiva?
- A. Son
B. Cousin
C. Brother-in-Law
D. Son-in-Law
36. Suman is daughter-in-Law of Rakesh and sister-in-Law of Rajesh. Ramesh is the son of Rakesh and only brother of Rajesh. Find the relation of Suman with Ramesh.
- A. Sister-in-Law
B. Cousin
C. Aunt
D. Wife
37. Skewness of Normal Distribution is
- A. Negative
B. Positive
C. Zero

D. Undefined

38. Pearson's Correlation coefficient between x and y is:

A. $\frac{cov(x,y)}{S_x S_y}$

B. $\frac{cov^y(x,y)}{S_x S_y}$

C. $\frac{(S_x S_y)^2}{cov(x,y)}$

D. $\frac{(S_x S_y)}{cov(x,y)}$

39. If a poisson distribution is such that $P(x=2) = P(x=3)$ then the variance of the distribution is

A. $\sqrt{3}$

B. 3

C. 6

D. 9

40. The standard Deviation of Binomial distribution is:

A. npq

B. \sqrt{npq}

C. np

D. \sqrt{np}

41. A farmer borrowed ₹3600 at the rate of 15% simple interest per Annum. At the end of 4 years he cleared this account by paying ₹4000 and a cow. The cost of the cow is:

A. ₹1000

B. ₹1200

C. ₹1550

D. ₹1760

42. How much amount is required to be invested every year so as to accumulate ₹5,00,000 at the end of 12 year if interest is compounded annually at 10%? (where $A(12, 0.1) = 21.384284$)

A. ₹23381.65

B. ₹24385.85

C. ₹26381.65

D. ₹28362.75

43. The effective annual rate of interest corresponding to a normal rate of 6% per annum payable half yearly is:

A. 6.06%

- B. 6.07%
- C. 6.08%
- D. 6.09%
44. 10 years ago the earning per share (EPS) of ABC Ltd. was ₹5 share. Its EPS for this year is ₹22. Compute at what rate, EPS of the company grow annually?
- A. 15.97%
- B. 16.77%
- C. 18.64%
- D. 14.79%
45. If 'Frozen' is decoded as 'OFAPSG'. Tick the right option that depicts 'MOLTEN' written in this way?
- A. OFPOMN
- B. OFSMPN
- C. OFUMPN
- D. OFUNPN
46. Radha moves towards South-East a distance of 7 km, then she moves towards West and travels a distance of 14 km. From here she moves towards North-West a distance of 7 km and finally she moves a distance of 4 km towards east. How far is she now from the starting point?
- A. 3 km
- B. 4 km
- C. 10 km
- D. 11 km
47. P, Q, R and S are playing a game of carrom. P, R and S. Q are partners. 'S' is to the right of 'R'. If 'R' is facing West, then 'Q' is facing which direction?
- A. South
- B. North
- C. East
- D. West
48. Pointing to a man in the photograph, Khushi says, "This man's son's sister is my mother-in-law." How is the Khushi's husband related to the man in the photograph?
- A. Grandson
- B. Son
- C. Son in law
- D. Cousin

49. 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
50. If $P(A) = \frac{1}{3}$, $P(B) = \frac{3}{4}$ and $P(A \cup B) = \frac{11}{12}$ then $P\left(\frac{B}{A}\right)$ is :
- A. $\frac{1}{6}$
B. $\frac{4}{9}$
C. $\frac{1}{2}$
D. $\frac{1}{8}$
51. The probability that a leap year has 53 Monday is:
- A. $\frac{1}{7}$
B. $\frac{2}{3}$
C. $\frac{2}{7}$
D. $\frac{3}{5}$
52. Raju invests ₹20,000 every year in a deposit scheme starting from today for next 12 years. Assuming that interest rate on this deposit is 7% per annum compounded annually. What will be the future value of this annuity? Given that $(1+0.07)^{12} = 2.25219159$
- A. ₹540,526
B. ₹382,813
C. ₹643,483
D. ₹357,769
53. Mr. A invested ₹10,000 every year for next 3 years at the interest rate of 8 percent per annum compounded annually. What is future value of the annuity.
- A. 32644
B. 32464
C. 34264
D. 36442
54. Mr. Prakash invested money in two schemes 'A' and 'B' offering compound interest at the rate of 8% and 9% per annum respectively. If the total amount of interest accrued through these two schemes

together in two years was ₹4818.30 and total amount invested was ₹27,000. What was the amount invested in scheme 'A'?

- A. ₹12,000
 - B. ₹12,500
 - C. ₹13,000
 - D. ₹13,500
55. A sum of money invested of compound interest doubles itself in four years. In how many years it becomes 32 times of itself at the same rate of compound interest.
- A. 12 years
 - B. 16 years
 - C. 20 years
 - D. 24 years
56. One morning a boy starts walking in a particular direction for 5 km and then takes a left turn and walks another 5 Km thereafter he again takes left turn and walks another 5 Km and at last he takes right turn and walks 5 Km. Now he sees his shadow in front of him. What direction he did start initially?
- A. South
 - B. North
 - C. West
 - D. East
57. It is 3'o clock in a watch. If the minute hand points towards the North-East then the hour hand will point towards the
- A. South
 - B. South-West
 - C. North-West
 - D. South – East
58. Six persons A, B, C, D, E and F are sitting in two rows with three persons in each row. Both rows are in front of each other. E is not at the end of the any row and D is second left to the F, C is neighbour of E and diagonally opposite to D. If B is neighbour of F who is in front of C then who is sitting diagonally to F?
- A. C
 - B. E
 - C. A
 - D. D
59. Find the odd man out:
- 34, 105, 424, 2123, 12756

- A. 12756
B. 2123
C. 424
D. 34
60. The speeds of a number of bikes follow a normal distribution model with a mean of 83 km/hr and a standard deviation of 9.4 km/hr. Find the probability that a bike picked at random is travelling at more than 95 km/hr?
- A. 0.1587
B. 038
C. 0.49
D. 0.278
61. Suppose A and B are two independent events with probabilities $P(A) \neq 0$ and $P(B) \neq 0$. Let A' and B' be their complements. Which one of the following statements is FALSE?
- A. $P(A \cap B) = P(A)P(B)$
B. $P(A/B) = P(A)$
C. $P(A \cup B) = P(A) + P(B)$
D. $P(A' \cap B') = P(A')P(B')$
62. The Theorem of Compound Probability states that for any two events A and B.
- A. $P(A \cap B) = P(A) \times P(B/A)$
B. $P(A \cup B) = P(A) \times P(B/A)$
C. $P(A \cap B) = P(A) \times P(B)$
D. $P(A \cup B) = P(A) + P(B) - P(A \cap B)$
63. The difference between compound interest and simple interest on an amount of ₹15,000 for 2 years is ₹96. What is the rate of interest per annum?
- A. 9%
B. 8%
C. 11%
D. 10%
64. ₹5,000 is invested every month end in an account paying interest @ 12% per annum compounded monthly/ what is the future value of this annuity just after making 11th payment? {Given that $(1.01)^{11} = 1.1156$ }
- A. ₹57,800
B. ₹56,100
C. ₹56,800
D. ₹57,100

65. If roots of the equation $x^2 - px + q = 0$ are in the ratio 2:3, then
- A. $p^2 = 25q$
 - B. $p^2 = 6q$
 - C. $6p^2 = 5q$
 - D. $6p^2 = 25q$
66. A sum of money doubles itself in 4 years at certain compound interest rate. In how many year this sum will become 8 times at the same compound interest rate?
- A. 12 years
 - B. 14 years
 - C. 16 years
 - D. 18 years
67. Sinking fund factor is the reciprocal of :
- A. Present value interest factor of a single cash flow
 - B. Present value interest factor of an annuity
 - C. Future value interest factor of an annuity
 - D. Future value interest factor of a single cash flow
68. Find the missing number in the following series?
3, 5, 5, 19, 7, 41, 9, ?, 41, 109
- A. 71
 - B. 61
 - C. 69
 - D. 79
69. P, Q, R, S and T are sitting in a line facing West. P and Q are sitting together. R is sitting south end and S is sitting at North end. T is neighbour of Q and R. who is sitting the middle?
- A. P
 - B. Q
 - C. R
 - D. S
70. A man is facing west. He turns 45 degree in the clockwise direction and then another 180 degree in the same direction and then 270 degree in the anti clockwise direction. Find which direction he is facing now?
- A. South- East
 - B. West
 - C. South
 - D. South-West

71. In certain Code language, if TOUR is written as 1234 CLEAR is written 5678 and SPARE is written as 90847, find the code for CARE
- A. 1247
 - B. 4847
 - C. 5247
 - D. 5847
72. Mean deviation is minimum when deviations are taken from:
- A. Mean
 - B. Median
 - C. Mode
 - D. Range
73. If a number is selected at random from the first 50 natural numbers, what will be the probability that the selected number is a multiple of 3 and 4?
- A. 550
 - B. 225
 - C. 330
 - D. 425
74. If the first quartile is 56.50 and third quartile is 77.50, then the coefficient of quartile deviation is
- A. 638.09
 - B. 15.67
 - C. 63.80
 - D. 156.71
75. If three coins are tossed simultaneously, what is the probability of getting two heads together?
- A. $\frac{1}{4}$
 - B. $\frac{1}{8}$
 - C. $\frac{5}{8}$
 - D. $\frac{3}{8}$
76. 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
77. If $2x + 5 > 3x + 2$ and $2x - 3 \leq 4x - 5$, the 'x' can take which of the following value.

- A. 4
B. -4
C. 2
D. -2
78. If the cost of 3 bags and 4 pens is ₹257 whereas the cost of 4 bags and 3 pens is ₹324, then the cost of one bag is:
A. 8
B. 24
C. 32
D. 75
79. If $\log_{10}2 = y$ and $\log_{10}3 = x$, then value of $\log_{10}15$ is :
A. $x - y + 1$
B. $x - y + 1$
C. $x - y - 1$
D. $y - x + 1$
80. $\log_3 4 \cdot \log_4 5 \cdot \log_5 6 \cdot \log_6 7 \cdot \log_7 8 \cdot \log_8 9$ equal to:
A. 3
B. 2
C. 1
D. 0
81. The number of subsets of the set $\{0, 1, 2, 3\}$ is
A. 2
B. 4
C. 8
D. 16
82. Find the next number in the given sequence?
11, 17, 39, 85, 7, 281, 447
A. 133
B. 143
C. 153
D. 163
83. $\int (2x - 3)^6 dx$ is
A. $\frac{(2x-3)^6}{6}$

B. $\frac{(2x-3)^6}{2}$

C. $\frac{(2x-3)^6}{12}$

D. $\frac{(2x-3)^6}{3}$

84. If ROSE is coded as 6821, CHAIR is coded as 73456 and PREACH is coded as 961473, what will be the code for SEARCH?
- A. 246173
B. 214673
C. 216473
D. 214763
85. Ogive for more than type and less type distributions interest at
- A. Mean
B. Median
C. Mode
D. Origin
86. The median of the observations 42, 72, 35, 92, 67, 85, 72, 81, 51, 56 is
- A. 69.5
B. 72
C. 64
D. 61.5
87. If the sum of square of the values equals to 3390. Number of observations are 30 and standard deviation is 7, what is the mean value of the above observations?
- A. 14
B. 11
C. 8
D. 5
88. The mean of 50 observations is 36. If two observations 30 and 42 are to be excluded then the mean of the remaining observations will be:
- A. 36
B. 38
C. 48
D. 50
89. A sum of money to be distributed among A, B, C, D in the proportion of 5:2:4:3. If C gets ₹1000 more than D, what is B's share?

- A. 2000
B. 1500
C. 2300
D. 1000
90. By simplifying $(2a^3b^4)/((4a^2b)^2 \times (a^3b^2))$, the answer will be
A. $4a^3b^2$
B. $4a^3b^{22}$
C. $4a^{22}b^{22}$
D. $4a^{24}b^{24}$
91. A group of 400 soldiers posted at border area had a provision for 31 days. After 28 days 280 soldiers from this group were called back. Find the number of days for which the remaining ration will be sufficient?
A. 4
B. 6
C. 8
D. 10
92. The solution of the following system of linear equations $2x - 5y + 4 = 0$ and $2x + y - 8 = 0$ will be
A. (2, -3)
B. (1, -3)
C. (3, 2)
D. (-2, 2)
93. If $x^5 + y^5 - 5xy = 0$ then $\frac{dy}{dx}$ is
A. $\frac{y+x^4}{x+y^4}$
B. $\frac{y-x^4}{y^4-x}$
C. $\frac{x-y^4}{x^4-y}$
D. $\frac{x+y^4}{x^4+y}$
94. If arithmetic Mean and Geometric Mean between two numbers are 5 and 4 respectively, then these numbers are
A. 2 & 3
B. 2 & 8
C. 4 & 6

- D. 1 & 16
95. $\int_2^4 \frac{xdx}{x^2+1}$ is
- A. $\frac{1}{2} \log\left(\frac{17}{5}\right)$
- B. $2\log\left(\frac{17}{5}\right)$
- C. $\frac{1}{2} \log\left(\frac{5}{17}\right)$
- D. $2\log\left(\frac{5}{17}\right)$
96. If the variance of a random variable 'x' is 17, then what is variance of $y = 2x + 5$?
- A. 34
- B. 39
- C. 68
- D. 78
97. If the variance of given data is 12, and their mean value is 40, what is coefficient of variation (CV)?
- A. 5.66%
- B. 6.66%
- C. 7.50%
- D. 8.65%
98. In a given set if all data are of same value then variance would be:
- A. 0
- B. 1
- C. -1
- D. 0.5
99. If Arithmetic mean between two numbers is 5 and Geometric mean is 4 then what is the value of Harmonic mean?
- A. 3.2
- B. 3.4
- C. 3.5
- D. 3.6
100. The average age of 15 students in a class is 9 years. Out of them, the average age of 5 students is 13 years and that of 8 students is 5 years. What is the average of remaining 2 students?
- A. 5 years
- B. 9 years

C. 10 years

D. 15 years