J.K. SHAH® CLASSES | a Vranda Enterprise

CODE : CFP 303 **MARKS : 100**

CA FOUNDATION

QUANTITATIVE APTITUDE

TOPIC : FULL **TIME ALLOWED : 3 HOURS**

1. The value of $A^{\frac{1}{2}} \times A^{\frac{1}{4}} \times A^{\frac{1}{8}} \ldots\ldots \infty$

(a) zero (b) Infinity (c) $\frac{1}{2}$ (d) A

2. In a certain code 256 means 'Red Colour Chalk' , 589 means 'Green Colour Flower' and 245 means 'White Colour Chalk' .What digit in the code means 'White' ?

(a) 2 (b) 4 (c) 5 (d) None of these

3. Arun started from point A and walked 10 km East to point B, then turned to North and walked 3 km to point C and then turned West and walked 12 kms to point D, then again turned South and walked 3 kms to point E. In which direction is he from his straight point ?

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

4. If the rate of interests are 6%, 8% and 10% yearly for first, second and third year respectively, then the compound interest for 3 years on the amount Rs. 60,000 will be:-

(a) Rs. 19,446 (b) Rs. 15,556.80 (c) Rs. 16,602 (d) Rs. 75,556.80

5. If every 9th unit is selected from universal set then this type of sampling is known as:

(a) Quota Sampling (b) Systematic Sampling

(c) Stratified Sampling (d) None of these

6. A bag contains coins of Rs. 1, 50 paisa and 25 paisa in the ratio 4:5:6. If the total amount in the bag is Rs. 120, then the number of coins of 25 paisa, is :-

(a) 60 (b) 75 (c) 90 (d) 96

7. A, B, C, D are four quantities of the same kind such that A:B=4:5, B:C=7:8, C:D=12:13, then A:B:C is :-

(a) 4:35:104 (b) 4:35:84 (c) 28:35:40 (d) 30:40:45

8. If set A = {1,2,3}, then what is the power set of A ?

(a) { {1}, {2}, {3}, {1,2}, {1,3}, {2,3}, {1,2,3} }

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

(c) $\{\phi, \{1\}, \{2\}, \{3\}, \{1,2\}, \{1,3\}, \{2,3\}, \{1,2,3\}\}$

(d) None

9. The value of $\frac{1}{1+a^{x-y}} + \frac{1}{1+a^{y-x}}$ is equal to :

(a) 1 (b) 0 (c) 2 (d) a^{x+y+z}

10. A parameter is a characteristic of

(a) Population (b) Sample

(c) Both (a) and (b) (d) None of the above

* **Directions (11-13) Study the following information carefully to answer the questions given below.**

P, T, V, R, M, D, K and W are sitting around a circle table facing the centre. V is second to the left of T. T is fourth to the right of M. D and P are not immediate neighbours of T. D is third to the right of P. W is not an immediate neighbour of P. P is to the immediate left of K.

11. Who is Second to the left of K?

(a) P (b) R (c) M (d) W

12. Who is the immediate left of V?

(a) D (b) M (c) W (d) None

13. What is R's Position with respect to V?

(a) Third to the right (b) Fifth to the right

(c) Third to the left (d) Second to the left

14. Link relative index number is expressed for period n is

(a) $\frac{P_n}{P_{n+1}}$ (b) $\frac{P_0}{P_{n-1}}$ (c) $\frac{P_n}{P_{n-1}} \times 100$ (d) None of these

15. The probability that a number selected from [1,2,3,4,……., 100] is a perfect cube is

(a) $\frac{1}{10}$ (b) $\frac{1}{25}$ (c) $\frac{1}{20}$ (d) $\frac{3}{100}$

16. Out of the following which is a positional average -

(a) Arithmetic mean (b) Geocentric mean

(c) Median (d) Harmonic mean

17. Which one of the following cannot be determined by graphic method-

(a) Mean (b) Median (c) Quartiles (d) Mode

18. Consecutive rectangles in a Histogram have no space in between

(a) true (b) false (c) both (d) none

19. $\sqrt{2+\sqrt{2+\sqrt{2+---}}} \; ---\infty$ equals to

(a) -1 (b) 2 (c) a & b (d) None of these

20. The length of a rectangle is 4cm more than the breadth and the perimeter is 11cm more than the breadth. The length of the rectangle is :

(a) 5 cm (b) 7 cm (c) 9 cm (d) none of these

21. A car that costs Rs. 6,00,000 is bought by paying Rs. 1,00,000 as down-payment and equal annual payments for three-years. What is the annual installment if the interest is paid at 8% on the remaining amount compounded annually?

(a) Rs. 1,94,016.75 (b) Rs. 2,94,016.75

(c) Rs. 1,61,013.75 (d) Rs. 1,74,016.75

22. There are 15 points in a plane, out of there 6 are collinear. The number of straight lines formed by joining these points is:-

(a) 90 (b) 91 (c) 45 (d) 51

23. The number of arrangements of the letters of the word "SALOON" if the two O s do not come together is :-

(a) 360 (b) 720 (c) 240 (d) 120

24. There are 10 trains plying between Calcutta and Delhi. The number of ways in which a person can go from

Calcutta to Delhi and return by a different train is

(a) 99 (b) 90 (c) 80 (d) none of these

25. How many different words can be formed with the letters of the word „MISSISSIPPI ?

(a) 36450 (b) 35460 (c) 34560 (d) 34650

26. If ${}^{n}P_5 = 20\ {}^{n}P_3$ then n is equal to :-

(a) 7 (b) 6 (c) 8 (d) 5

27. Insert 4 GM s between 9 and 288 :-

(a) 27, 54, 108, 144 (b) 18, 36, 72, 144

(c) 36, 72, 144, 208 (d) 18, 27, 54, 108

28. If $\log_{10} 2 = x$ and $\log_{10} 4 = y$, then $\log_{10} 80$ is equal to:

(a) $x-y+1$ (b) $x+y+1$

(c) $x-y-1$ (d) $2x-y+1$

29. If $\log_3 [\log_2 (\log_3 x)]=1$ then x is equal to:-

(a) 8 (b) 18 (c) 81 (d) 6561

30. $\dfrac{2^{n+3}-10\times 2^{n+1}}{2^{n+1}\times 6}$ is equal to:-

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

31. Suppose the revenues of a company for five years:-

Year	2013	2014	2015	2016	2017
Revenues	100	120	160	210	260

Calculate compound annual growth rate.

(a) 26.98% (b) 27.74% (c) 25.96% (d) 29.01%

32. In a class of 120 students, 35% students can play only cricket, 45% students can play only table tennis and the remaining students can play both the games. In all how many students can play cricket?

(a) 55 (b) 66 (c) 60 (d) 70

33. $\int \dfrac{dx}{x+\sqrt{x^2-1}}$

(a) $\dfrac{x^2}{2}-\dfrac{x}{2}\sqrt{x^2+1}+\dfrac{1}{2}\log\ (x+\sqrt{x^2-1})+C$

(b) $x-\dfrac{x}{2}\sqrt{x^2-1}-\dfrac{1}{2}\log\ (x+\sqrt{x^2-1})+C$

(c) $\dfrac{x^2}{2}+\dfrac{x}{2}\sqrt{x^2-1}+\dfrac{1}{2}\log\ (x+\sqrt{x^2-1})+C$

(d) $\dfrac{x^2}{2}-\dfrac{x}{2}\sqrt{x^2-1}+\dfrac{1}{2}\log\ (x+\sqrt{x^2-1})+C$

34. $\int_1^2 (x^2-5x+2)\,dx$

(a) $-\dfrac{6}{19}$ (b) $\dfrac{19}{6}$ (c) $-\dfrac{19}{6}$ (d) 19

35. The derivative of $x^2 \log x$ *is* :–

(a) $1+2\log x$ (b) $2\log x$

(c) $x(1+2\log x)$ (d) None

36. If the plotted points in a scatter diagram lie from upper left to lower right, then correlation is:

(a) Positive (b) Zero (c) Negative (d) None of these

37. Co-variance may be positive, negative or zero:

(a) True (b) False (c) Both (d) None

38. The difference between the observed value and the estimated value in regression analysis is known as:

(a) Error (b) Residue (c) Deviation (d) (a) or (b)

39. The two lines of regression meet at:

(a) $(\bar{x}, \bar{y})$ (b) (σ_x , σ_y)

(c) $(\sigma_x^2 , \sigma_y^2)$ (d) (x, y)

40. Two lines of regression are given by 5x+7y-22=0 and 6x+2y-22=0. If the variance of y is 15 find the standard deviation of x.

(a) 2.646 (b) 6.246 (c) 7.612 (d) 3.646

41. If the regression coefficient of y on x, the coefficient of correlation between x and y and variance of y are -3/4, $-\sqrt{3}/2$ and 4 respectively, what is the variance of x?

(a) $2/\sqrt{3}/2$ (b) 16/3 (c) 4/3 (d) 4

42. Two dice with face marked 1, 2, 3, 4, 5, 6 are thrown simultaneously and the points on the dice are multiplied together. The probability that product is 12 is:

(a) 4/36 (b) 5/36 (c) 12/36 (d) None

43. A box contains 5 white and 7 black balls. Two successive draws of 3 balls are made (i) with replacement (ii) without replacement. The probability that the first draw would produce white balls and the second draw would produce black balls are respectively:

(a) 6/321 and 3/926 (b) 1/20 and 1/30

(c) 35/144 and 35/108 (d) 7/968 and 5/264

44. Standard normal distribution have inflexion points:

(a) μ & σ (b) $\mu - \sigma$ & $\mu + \sigma$

(c) -1 & $+1$ (d) None of these

45. The probability that A speaks truth is 4/5, while the probability for B is 3/4. The probability that they contradict each other when asked to speak on a fact is:

(a) 3/20 (b) 1/5 (c) 7/20 (d) 4/5

46. What is the probability that a leap year selected at random would contain 53 Saturdays?

(a) 1/7 (b) 2/7 (c) 1/12 (d) 1/4

47. Variance of a random variable x is given by:

(a) $E(x-\mu)^2$ (b) $E[x-E(x)]^2$

(c) $E(x^2-\mu)$ (d) (a) or (b)

48. A Binomial distribution is_____. The parameter(s) are:

(a) Biparametric, n and q (b) Biparametric, n and p

(c) Uniparametric, p (d) Uniparametric, q

49. What is the no. of trials of a binomial distribution having mean and SD as 3 and 1.5 respectively?

(a) 2 (b) 4 (c) 8 (d) 12

50. In Binomial Distribution, $\mu = 4,\ \sigma^2 = 3$, then mode =

(a) 4 (b) 4.25 (c) 4.5 (d) 4.1

51. The cost of living index numbers in years 2015 and 2018 were 97.5 and 115 respectively. The salary of a worker in 2015 was Rs. 19500. How much additional salary was required for him in 2018 to maintain the same statement of living as in 2015?

(a) Rs. 3,000 (b) Rs. 4,000 (c) Rs. 3,500 (d) Rs. 4,500

52. Which is called an ideal index number?

(a) Laspayer s index number (b) Pasche s index number

(c) Fisher s index number (d) Marshall Edgeworth index number

53. The no. of observations falling within a class is called

(a) density (b) frequency (c) both (d) none

54. Frequencies are also called weights.

(a) True (b) false (c) both (d) none

55. The value exactly at the middle of a class interval is called

(a) class mark (b) mid value (c) both (d) none

56. G.M. of a set of n observations is the root of their product.

(a) nth (b) (n+1)th (c) n^2th (d) (n-1)th

57. The average rainfall for a week excluding Sunday was 10 cms. Due to heavy rainfall on Sunday, the average rainfall for the week rose to 15 cms. How much rainfall was there on Sunday?

(a) 40 cm (b) 45 cm (c) 50 cm (d) 165 cm

58. The mean salary paid per week to 1,000 employees of an establishment was found to be Rs. 900. Later on, it was discovered that the salaries of two employees were wrongly recorded as Rs. 750 and Rs. 365 instead of Rs. 570 and Rs. 635. Find the corrected mean salary.

(a) 280 (b) 1000 (c) 900.09 (d) 800.09

59. In following data-

	Male	Female
Observations	2	2
GM	4	25

then find combined geometric mean-

(a) 9 (b) 6.11 (c) 10 (d) None of these

60. Which is always true for distinct observations-

(a) Standard Deviation = $\sqrt{\frac{\sum x^2}{n}}$ (b) Standard Deviation = $\sum x^2 + n^2$

(c) $\sum X^2 = n(\sigma^2 + \overline{X}^2)$ (d) $\overline{X}^2 = \sigma^2 + n^2$

61. Standard Deviation is independent of change of_____.

(a) Origin (b) Scale (c) Both (d) None of these.

62. To check the consistency of two data which measure of dispersion will be used-

(a) QD (b) SD (c) CV (d) None of these

63. For the distribution

X	1	2	3	4	5	6
F	6	9	10	14	12	8

The value of median is

(a) 3.5 (b) 3 (c) 4 (d) None of these

64. The Q.D. of 6 numbers 15, 8, 36, 40, 38, 41 is equal to

(a) 12.5 (b) 25 (c) 13.5 (d) 37

65. The prices and quantities of 3 commodities in base and current years are as follows:

P_0	P_1	q_0	q_1
12	14	10	20
10	8	20	30
8	10	30	10

The Laspayer price index is

(a) 118.13 (b) 107.14 (c) 120.10 (d) None

66. Coefficient of quartile deviation is ¼ then Q3/Q1 is

(a) 5/3 (b) 4/3 (c) 3/4 (d) 3/5

67. For a symmetric distribution

(a) Mean = Median = Mode (b) Mode = 3 Median –2 Mean

(c) Mode = $\frac{1}{3}$ Median = 1/2 (d) None

68. Which number should be subtracted from 23, 30, 57 and 78 so that remaining numbers are in proportion?

(a) 4 (b) 5 (c) 6 (d) 7

69. A sum was invested for 3 years as per C.I and the rate of interest for first year is 9%, 2nd year is 6% and 3rd year is 3% p.a. respectively. Find the sum if the amount in three years is Rs. 550?

(a) Rs. 250 (b) Rs. 300 (c) Rs. 462.16 (d) Rs. 350

70. A man deposited Rs. 8,000 in a bank for 3 years at 5% per annum compound interest, after 3 years he will get :

(a) Rs. 8,800 (b) Rs. 9,261 (c) Rs. 9,200 (d) Rs. 9,000

71. A man tosses a fair coin 10 times, the probability that he has heads on the five tosses is:

(a) $^{10}c_5\left(\frac{1}{2}\right)^{10}$ (b) $\left(\frac{1}{2}\right)^{10}$ (c) $^{5}c_1\left(\frac{1}{2}\right)^{10}$ (d) $\left(\frac{1}{2}\right)^{5}$

72. 6 coins are tossed 512 times. Also, compute the mean and SD of the number of heads:

(a) 2 and 1.33 (b) 3 and 1.22 (c) 4 and 1.55 (d) 2 and 1.11

* **Directions (Q.73-75) : Read the following information carefully and answer the questions, given below :-**

(i) 'P ÷ Q' means P, is Son of Q

(ii) 'P x Q' means P, is Sister of Q

(iii) 'P + Q' means P, is Brother of Q

(iv) 'P - Q' means P, is Mother of Q

73. How is T related to S in the expression?

'T x R + V ÷ S' ?

(a) Sister (b) Mother (c) Aunt (d) Daughter

74. How is T related to S in the expression?

'T x R ÷ V - S' ?

(a) Father (b) Sister (c) Daughter (d) Aunt

75. How is V related to T in the expression?

'T ÷ R + V x S' ?

(a) Aunt (b) Nephew (c) Niece (d) Uncle

76. One evening, Raja started to walk toward the Sun. After walking a while, he turned to his right and again to his right. After walking a while, he again turned right. In which direction is he facing ?

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

77. 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

78. $\lim_{n\to\infty} \left| \frac{1^2+2^2+3^2+.....+n^2}{n^3} \right|$ is equal to

(a) $\frac{1}{3}$ (b) 0 (c) 1 (d) None

79. Compute AM, GM and HM FOR 6, 8, 12, 36

(a) 15.50, 12, 9.93 (b) 9.93, 15, 8.65

(c) 9.52, 14.35, 8.65 (d) 18.25, 19, 7.54

80. If the standard deviation of x is 3, what is the variance of (5-2x)?

(a) 36 (b) 6 (c) 1 (d) 9

81. If $f(x)={}^{x}c_2$, *then* $f'(3)$ is equal to:-

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

82. If $f(x)=\frac{x-1}{x}$ *and* $g(x)=\frac{1}{1-x}$ then fog (x) is equal to:-

(a) x-1 (b) x (c) 1-x (d) -x

83. If a Relation R = {(1, 1), (2, 2), (1, 2), (2, 1)} on A = {1, 2, 3}, then R is:

(a) Reflexive, Symmetric and Transitive (b) Reflexive and Symmetric

(c) Reflexive and Transitive (d) Symmetric and Transitive

84. The difference between the roots of the equation $x^2-7x-9=0$ is:

(a) 7 (b) $\sqrt{85}$ (c) 9 (d) $2\sqrt{85}$

85. Let E_1 and E_2 one two linear equations in two variables x and y. (0,1) is a solution of both equations E_1 and E_2. (2,-1) is a solution of equation E_1 only and (-2,-1) is solution of E_2 only then E_1 and E_2 are:-

(a) x=0, y=1 (b) 2x-y=-1, 4x+y=1

(c) x+y=1, x-y=-1 (d) x+2y=2, x+y=1

86. If one root of the equation is $2-\sqrt{3}$, form the equation.

(a) $x^2-2x+2=0$ (b) $x^2-3x+1=0$

(c) $x^2-5x+5=0$ (d) $x^2-4x+1=0$

87. Solve $x^3-7x+6=0$

(a) x = –4, –2, –3 (b) x = 1, 2, –3
(c) x = 5, 6, –1 (d) x = 7, 2, –5

88. Two machines (I and II) produce two grades of plywood, Grade A and Grade B. In one hour of operation, machine I produces 2 units of Grade A and one unit of Grade B, while machine II, in one hour of operation produces 3 units of grade A and four units of grade B. The machines are required to meet a production schedule of atleast 14 units of grade A and 12 units of grade B. Express this using linear inequalities.

(a) $2x+3y\geq14,\ x+4y\geq12,\ x\geq0,\ y\geq0$ (b) $2x+3y\leq14,\ x+4y\geq12,\ x\geq0,\ y>0$
(c) $2x+3y\leq14,\ x+4y\leq12,\ x\geq0,\ y\geq0$ (d) $2x+3y\geq14,\ x+4y\leq12,\ x\geq0,\ y\geq0$

89. The numbers a, X, c are in A.P. if X = 25 and a, Y, c are in G.P. if Y = 7, then the value of (a, c) are:

(a) 1, 16 (b) 1, 25 (c) 1, 36 (d) 1, 49

90. A person received the salary for the 1st Year is Rs. 5,00,000 per year and he received an increment of Rs. 15,000 per year then the sum of the salary he taken in 10 years.

(a) Rs. 56,75,000 (b) Rs. 72,75,000 (c) Rs. 63,75,000 (d) None

91. The effective annual rate of interest corresponding to a nominal rate of 6% per annum payable half – yearly is

(a) 6.06% (b) 6.07% (c) 6.08% (d) 6.09%

92. What is the present value of Rs. 1 to be received after two years compounded annually at 10% interest rate ?

(a) 0.73 (b) 0.60 (c) 0.90 (d) 0.83

93. Find the next term of the series BKS, DJT, FIU, HHV, ?

(a) GWJ (b) JGW (c) GJW (d) None

94. A man goes 3 km east from point A and then takes a right turn from point B to move 4 km to point C. What is the minimum distance between point A and point C ?

(a) $2\sqrt{2}$ km (b) **5 km** (c) **7 km** (d) **6 km**

95. If A = 1, FAT = 27, FAITH = ?

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

96. If PLAY is coded as 8123 and RHYME is coded as 49367. What will be code of MALE ?

(a) 6217 (b) 6198 (c) 6395 (d) 6285

97. A, P, R, X, S and Z are sitting in a row. S and Z are in the centre. A and P are at the ends. R is sitting to the left of A. Who is to the immediate right of P?

(a) A (b) X (c) S (d) Z

98. If ROSE is written as TQUG, how BISCUIT can be written in that code?

(a) DKUEWKV (b) CJTDVJU (c) DKVEWKV (d) DKUEWKY

99. Madhuri moved a distance of 75 meters toward north. She then turned to the left and walking for about 25m, turned left again and walks 80m, finally she turned to the right at an angle of 45o. In which direction was she moving finally?

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

100. The population of a village increase by 2% per year, if current population is 50,000 then find the population of village after 2 years:-

(a) 52,020 (b) 52,000 (c) 51,980 (d) 52,100

-0-0-0-0-0-0-0-0-0-0-