MITTAL COMMERCE CLASSES   CA FOUNDATION– MOCK TEST

(GCF-2, GCF-3, GCF-3A, GCF-5, GCF-6, GCF-7, GCF-8, GCF-9, GCF-10, GCF-11, GCF-12, GCF-13, VCF-VDCF-1, VCF-VDCF-2)
DATE: 13.11.2022   **MAXIMUM MARKS: 100**   **TIMING: 2 Hours**

BUSINESS MATHEMATICS, REASONING & STATISTICS

1. How much amount is required to be invested every years as to accumulate Rs. 7,96,870 at the end of 10 years, if interest compounded annually at 10% given that A (10,0.1) = 15.9374 ?
   (a) Rs. 40,000
   (b) Rs. 45,000
   (c) Rs. 48,000
   (d) Rs. 50,000

2. If Rs. 510 be divided among A, B, C in such a way that A gets $\frac{2}{3}$ of what B gets and B gets $\frac{1}{4}$ of what C gets, then the share of A ?
   (a) Rs. 60
   (b) Rs. 50
   (c) Rs. 150
   (d) Rs. 200

3. The present value of Rs. 10000 due in 2 years at 5% p.a. compound interest when the interest is paid on half-yearly basis is:
   (a) Rs. 9070.50
   (b) Rs. 9069.50
   (c) Rs. 9065.50
   (d) Rs. 9059.50

4. What is the number of ways that 4 boys and 3 girls can be seated so that boys and girls alternate?
   (a) 12
   (b) 72
   (c) 120
   (d) 144

5. The third proportional to $(x^2 - y^2)$ and $(x - y)$ is
   (a) $\dfrac{x + y}{x - y}$

   (b) $\dfrac{x - y}{x + y}$

   (c) $x + y$

   (d) $x - y$

6. If $x + \dfrac{1}{x} = \sqrt{2}$ then $x^2 + \dfrac{1}{x^2}$ is equal to
    (a)   1
    (b)   2
    (c)   0
    (d)   4

7. 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

8. If $f(x) = \dfrac{x-1}{x}$ and $g(x) = \dfrac{1}{1-x}$ then fog (x) is equal to:-
    (a)   x-1
    (b)   x
    (c)   1-x
    (d)   -x

9. The difference between the roots of the equation $x^2 - 7x - 9 = 0$ is:
    (a)   7
    (b) $\sqrt{85}$
    (c)   9
    (d) $2\sqrt{85}$

10. Find out sum of the roots of equation $3x^2 + (5m - 2) x + m = 0$ if one root is reciprocal to other.
    (a) $\dfrac{15}{2}$

    (b) $\dfrac{-13}{3}$

    (c) $\dfrac{5m-2}{3}$

    (d) $\dfrac{13}{2}$

11. In a city, three daily news paper A, B and C are published, 42% read A, 51% read B, 68% read C, 30% read A and B, 28% read B and C, 36% read A and C, 8% do not read any of the three newspapers. What is the percentage of person who read only one paper ?
    (a)   38%
    (b)   48%
    (c)   51%
    (d)   None

12. If the sum of n terms is $2n^2+5n$ then its nth term is
    (a)   4n − 3
    (b)   3n − 4
    (c)   4n + 3
    (d)   3n + 4

13. The value of $\left(\dfrac{x/y-1}{x^2/y^2-1} \right)$ is

    (a) $\dfrac{y}{x+y}$

    (b) $\dfrac{x}{x+y}$

    (c) $\dfrac{xy}{x+y}$

    (d) $\dfrac{x}{x-y}$

14. $\dfrac{\log_b x}{\log_{2b} x}$ is equal to

    (a) $1+ \log_b 2$
    (b) $1+ \log_2 b$

    (c) $\dfrac{1}{2}$

    (d)   log 2

15. Value of $\left(\dfrac{a^{-1}b^2}{a^2b^{-4}} \right)^7 \times \left(\dfrac{a^3b^{-5}}{a^{-2}b^3} \right)^{+5} \times a^{-4}b^{-2}$ is

    (a)   0
    (b) $a^2\, b^2$
    (c)   1
    (d) $a^{-1}\, b^{-1}$

16. Ratio of $\log_{.01}.00000001$ and $\log_{\sqrt{3}}81$ is

    (a)   1 : 1
    (b)   2 : 1
    (c)   1 : 2
    (d)   1 : 4

17. Find the value of x from the equation $5^{x+1} + 5^{2-x} = 5^3 + 1$
    (a)   (1, 2)
    (b)   (2, 1)
    (c)   (−1, 2)
    (d)   (1, −2)

18. The solution of the inequality 8x+6<12x+14 is
    (a) (-2,2)
    (b) (0, -2)
    (c) (2, ∞)
    (d) (-2, ∞)

19. A sum of money put at compound interest amounts in 2 years to Rs. 672 and in 3 years to Rs. 714. The rate of interest per annum is
    (a) 5.5%
    (b) 6.0%
    (c) 6.25%
    (d) 6.75%

20. If the compound interest on a certain sum at $16\frac{2}{3}\%$ for 3 years is Rs. 1,270, find the simple interest on the same sum at the same rate and for the same period.
    (a) 1,050
    (b) 1,020
    (c) 1,080
    (d) None of these

21. Assuming that the discount rate is 7% per annum, how much would you pay to receive Rs. 80 growing at 5%, annually, forever?
    (a) 3000
    (b) 2500
    (c) 4000
    (d) 5000

22. If $^{n+2}C_r = {}^{n+2}C_{10-r}$ then $^{n}C_6$ equals to
    (a) 8
    (b) 28
    (c) 56
    (d) None of these

23. The value of furniture depreciates by 10% a year, if the present value of the furniture in an office is Rs. 21,870, calculate the value of furniture 3 years ago:-
    (a) Rs. 30,000
    (b) Rs. 35,000
    (c) Rs. 40,000
    (d) Rs. 50,000

24. How much amount is required to be invested every year so as to accumulate Rs. 4,00,000 at the end of 10 years, if interest is compounded annually at 10%
    (a) Rs. 24506.18
    (b) Rs. 25098.16
    (c) Rs. 22506.18
    (d) Rs. 21098.16

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

Year	2014	2015	2016	2017	2018
Revenues	100	120	160	210	280

Calculate compound annual growth rate.
(a)   27.74%
(b)   29.35%
(c)   25.43%
(d)   31.60%

26.   A man invested $\frac{1}{3}$ of his capital at 7% , $\frac{1}{4}$ at 8% and the remainder at 10% Simple interest. If his annual income is Rs. 561, the capital is:
(a)   Rs. 5400
(b)   Rs. 6000
(c)   Rs. 6600
(d)   Rs. 7200

27.   On a certain sum, the simple interest at the end of $6\frac{1}{4}$ year becomes $\frac{3}{8}$ of the sum. The rate of Percentage is:
(a)   7%
(b)   6%
(c)   5%
(d) $5\frac{1}{2}$%

28.   A sum compounded annually become $\frac{25}{16}$ times of itself in 2 years, the rate of interest per annum is-
(a)   5%
(b)   12.5%
(c)   25%
(d)   50%

29.   A certain sum of money Q was deposited for 5 year and 4 months at 4.5% simple interest and amounted to Rs. 248, then the value of Q is :
(a)   Rs. 200
(b)   Rs. 210
(c)   Rs. 220
(d)   Rs. 240

30.   In simple interest if the principal is Rs. 2,000 and the Rate and time are the Roots of the equation $x^2 - 11x + 30 = 0$ then the simple interest is _____
(a)   Rs. 500
(b)   Rs. 600
(c)   Rs. 700
(d)   Rs. 800

31. How many numbers greater than 2000 can be formed with the digits 1, 2,3,4,5 with each digit distinct?
     (a)   216
     (b)   120
     (c)   24
     (d)   240

32. If A = {1,2,3,4,5,6,7,8,9,}
     B = {1,3,4,5,7,8};C = {2,6,8,} then find (A – B)∪C=
     (a)   {2,6,}
     (b)   {2,6,8}
     (c)   {2,6,8,9}
     (d)   None of these

33. If $^{11}C_{\boldsymbol{x}} = {}^{11}C_{2\boldsymbol{x}-4}$ and $x \neq 4$ then the value of $^{7}C_{\boldsymbol{x}} =$
     (a)   20
     (b)   21
     (c)   22
     (d)   23

34. 5 chairs and 3 tables cost of Rs. 350. and 3 Chairs and 5 tables cost Rs. 370. What is the cost of the one table and two chairs?
     (a)   Rs. 130
     (b)   Rs. 120
     (c)   Rs. 150
     (d)   Rs. 140

35. If $Y = 1 + x + x^2 +$ ……………… ∞ then x =

     (a) $\dfrac{y-1}{y}$

     (b) $\dfrac{y+1}{y}$

     (c) $\dfrac{y}{y+1}$

     (d) $\dfrac{y}{y-1}$

36. If the Cost of function of a commodity is given by $C = 150x - 5x^2 + \dfrac{x^3}{6}$, where C stands for cost and x stands for output. If the average cost is equal to the marginal cost then the output x =_____
     (a)   5
     (b)   10
     (c)   15
     (d)   20

37.   If a,b,c are in A.P. then (b+c), (c+a), (a+b) are in _____
        (a)   AP
        (b)   GP
        (c)   HP
        (d)   None

38.   In a G.P. If the fourth term is '3' then the product of first seven terms is
        (a) 3^5
        (b) 3^7
        (c) 3^6
        (d) 3^8

39.   If $f(x) = x^2$ and $g(x) = \sqrt{x}$ then
        (a) $gof(3)= 3$
        (b) $gof(-3) = 9$
        (c) $gof(9) = 3$
        (d) $gof(-9) = 3$

40. $\int_{2}^{3} \dfrac{\sqrt{x}}{\sqrt{5-x} + \sqrt{x}} \, dx =$
        (a)   1
        (b)   2
        (c)   1/2
        (d)   3/2

41.   The number of diagonals in a polygon of 6 sides :
        (a)   9
        (b)   8
        (c)   6
        (d)   12

42.   If $y^3 . x^5 = (x+y)^8$, $\dfrac{dy}{dx}$ is :

        (a) $\dfrac{y}{x}$

        (b) $\dfrac{-y}{x}$

        (c) $\dfrac{y^5}{x^3}$

        (d)   None of these

43.   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

44.   10, 100, 200, 310, 430 ?
       (a)   560
       (b)   540
       (c)   550
       (d)   590

45.   7, 26, 63, 124, 215, ?, 511
       (a)   342
       (b)   343
       (c)   441
       (d)   421

46.   If DELHI is coded as CCIDD, how would you encode BOMBAY ?
       (a)   AJMTVT
       (b)   AMJXVS
       (c)   MJXVSU
       (d)   WXYZAX

47.   A man started walking West. He turned right, then right again and finally turned left. Towards which direction was he walking now ?
       (a)   North
       (b)   South
       (c)   West
       (d)   East

Directions (Q 48–50): Study the following carefully and answer the questions given below:
A, B, C, D, E, F, G, H and K are sitting around a circle facing the centre. B is fourth to the left of G, who is second to the right of C. F is fourth to the right of C and is second to the left of K. A is fourth to the right of K. D is not an immediate neighbour of either K or B. H is third to the right of E.

48.   In which of the following combinations is the third person sitting between the first and the second persons?
       (a)   EKB
       (b)   CHB
       (c)   AGC
       (d)   FGD

49.   Who is fourth to the left of E ?
       (a)   A
       (b)   C
       (c)   G
       (d)   Data inadequate

50.   Who is the second to the right of K ?
       (a)   C
       (b)   H
       (c)   F
       (d)   E

51.   Identify the odd one out.
       (a)   Teacher
       (b)   Trainer
       (c)   Professor
       (d)   Student

52.   Five persons are sitting in a row. D is right to P and left to T. B is left to V and right
       to T. who are at the ends of the row?
       (a)   D, T
       (b)   T, B
       (c)   P, V
       (d)   D, B

53.   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

54.   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

55.   P, T, V, R, M, D, K and W are sitting around a circular 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 neighbuor of P. P
       is to the immediate left of K.
       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

56.   A man starts form a point, walks 4 miles North, turns to his right and walks 2 miles,
       again turns to his right and walks 2 miles, again turns to his right and walks 2 miles.
       In which direction would he be now from his starting point?
       (a)   North
       (b)   South
       (c)   East
       (d)   West

57.   If P+Q means P is the mother of Q, P÷Q Means P is the father of Q, P-Q means P is
       the sister of Q. Then which of the following relationship show that M is the daughter
       of R?
       (a)   R÷M+N
       (b)   R+N÷M
       (c)   R-M÷N
       (d)   None

58.   A person facing North 70° clock wise direction moving in clockwise and 300° clock wise direction. Now, in which direction he presently facing.
(a)   North-West
(b)   South-East
(c)   North-East
(d)   Sought-West

59.   Ravi's father has a son Rohit who has an aunt Laxmi who has a husband Rao whose father-in-law is Mohan. What is the relation of Mohan to Ravi ?
(a)   Nephew
(b)   Grandfather
(c)   Son
(d)   Uncle

60.   P, Q, R, S, T, U are 6 members of a family in which there are two married couples. T, a teacher is married to a doctor who is mother of R and U. Q the lawyer is married to P. P has one son and one grandson of the two married ladies one is housewife. There is also one student and one male engineer in the family. Which of the following is true about the grand-daughter of the family?
(a)   She is a lawyer
(b)   She is an engineer
(c)   She is a student
(d)   She is a doctor

61.   Six members of a family namely A, B, C, D, E and F are travelling together. 'B' is the son of C but C is not the mother of B. A and C are married couple. E is the brother of C, D is the daughter of A. F is the brother of B. How many male members are there in the family ?
(a)   3
(b)   2
(c)   4
(d)   1

62.   R and S are brothers. X is the sister of Y and X is mother of R. What is Y to S ?
(a)   Uncle
(b)   Brother
(c)   Father
(d)   Mother

63.   The colour of a flower is an example of
(a)   An attribute
(b)   A variable
(c)   A discrete variable
(d)   A Continuous variable

64.   The data are known to be_____if the data, as being already collected, are used by a different person or agency.
(a)   Primary
(b)   Secondary
(c)   Specialized
(d)   Subsidiary

65. Mutually exclusive classification is usually meant for
    (a)   A discrete variable
    (b)   A continuous variable
    (c)   An attribute
    (d)   None of these

66. The following data relate to the marks of a group of students :

Marks	No. of Students
Below 10	15
Below 20	38
Below 30	65
Below 40	84
Below 50	100

    How many students got marks more than 30?
    (a)   65
    (b)   50
    (c)   35
    (d)   43

67. Which of the following is correct?
    (a)   AM = Assumed Mean + Arithmetic Mean of deviations of terms.
    (b)   GM = Assumed Mean + Arithmetic Mean of deviations of terms.
    (c)   Both
    (d)   None

68. The mean of set of observation is $\bar{x}$. If each observation is divided by α , $\alpha \neq 0$ and then is increased by 10, then the mean of the new set is
    (a) $\bar{x}/\alpha$

    (b) $(\bar{x}+10)/\alpha$

    (c) $\dfrac{\bar{x}}{\alpha}+10$

    (d) $\alpha\bar{x}+10$

69. The mean annual salary of all employees in a company is Rs. 25,000. The mean salary of male and female employees is Rs. 27,000 and Rs. 17,000 respectively. Find the percentage of males and females employed by the company.
    (a)   60% and 40%
    (b)   75% and 25%
    (c)   70% and 30%
    (d)   80% and 20%

70.   The mean income of a group of workers is $\bar{x}$ and that of another group is $\bar{y}$. If the number of workers in the second group is 10 times the number of workers in the first group, then the mean income of the combined group is

      (a) $(\bar{x}+10\bar{y})/5$

      (b) $(\bar{x}+10\bar{y})/11$

      (c) $(10\bar{x}+\bar{y})/11$

      (d) $(\bar{x}+10\bar{y})/9$

71.   For ordering shoes of various sizes for resale, _____size will be more appropriate
      (a)   Median
      (b)   Mode
      (c)   Mean
      (d)   None

72.   The average of 2 number is 20 and their standard deviation 5. Find the two numbers?
      (a)   15, 25
      (b)   30, 40
      (c)   10, 15
      (d)   None of these

73.   Find mean deviations about median and also the corresponding coefficient for the following points ('000 Rs.) of a firm during a week.
      82, 56, 75, 70, 52, 80, 68.
      (a)   Rs. 8.714.28, 12.45
      (b)   Rs. 9.253.26, 15.23
      (c)   Rs. 8.263.50, 11.36
      (d)   Rs. 8.529.41, 13.24

74.   The mean and Standard deviation of a sample of 100 observations were calculated as 40 and 5.1 respectively by a CA student who took one observation as 50 instead of 40 by mistake. The correct value of Standard deviation would be
      (a)   4.90
      (b)   5.00
      (c)   5.88
      (d)   4.85

75.   If the difference between mean and Mode is 63, then the difference between mean and Median will be _____.
      (a)   63
      (b)   31.5
      (c)   21
      (d)   None of the above

76. For the data given calculate Fisher's index
$\Sigma P_1 Q_0 = 3365$, $\Sigma P_0 Q_0 = 3530$,
$\Sigma P_1 Q_1 = 3400$, $\Sigma P_0 Q_1 = 3600$
(a) 99
(b) 90
(c) 90.25
(d) 94.88

77. The most appropriate diagram to represent 5 year plan outlay of India in different economic sectors is:
(a) Pie diagram
(b) Histogram
(c) Line diagram
(d) Frequency polygon

78. If the standard deviation of x is 3, what is the variance of (5-2x)?
(a) 36
(b) 6
(c) 1
(d) 9

79. 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

80. Five competitors in a contest are ranked by two judges in the order 1, 2, 3, 4, 5 and 5,4,3,2,1 respectively. Calculate the Spearman's rank correlation coefficient.
(a) -0.5
(b) -1
(c) 0.5
(d) 1

81. Given the prices of 2 commodities are increased by 10% and 20% respectively and the price of another commodity is decreased by 30%. The relative importance of 3 commodities are in the ratio 3:3:1. Find weighted price index number.
(a) 80
(b) 109
(c) 108.5
(d) 110

82. Given the following data :

Commodity	P_0	q_0	p_1	q_1
A	1	10	2	5
B	1	5	X	2

where p and q represent price and quantity respectively and subscript for the time period. The value of X if the ratio between Laspeyres (L) and Paasche's (P) index numbers is 28 : 27 i.e., L : P = 28 : 27 is :
(a) 3
(b) 4
(c) 5
(d) 6

83.   Chronological classification is :
       (a)   classification of units on the basis of time
       (b)   classification of units on the basis of geographical area
       (c)   classification of units according to the characteristic of attributes
       (d)   classification of units according to the characteristic of variables

84.   If u = 2x+5, v=−3y +1, and the regression coefficient of y on x is − 1.2, the regression coefficient of v on u is :
       (a)   1.8
       (b)   −1.8
       (c)   3.26
       (d)   0.8

85.   If the relation between two variables x and y is 5x+2y=6 and the mean deviation (M.D.) of x about its mean is 6 then the M.D. of y about its mean is
       (a)   6
       (b)   15
       (c)   18
       (d)   none of these

86.   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

87.   Given the following data:
       Variable   :   X   Y
       Mean   :   80   98
       Variance   :   4   9
       Coefficient of correlation = 0.6
       What is the most likely value of y when x = 90?
       (a)   90
       (b)   103
       (c)   104
       (d)   107

88.   When the product of price index and the quantity index is equal to the corresponding value index then it is known as :
       (a)   Unit test
       (b)   Time reversal test
       (c)   Factor reversal test
       (d)   None

89.   If A and B are two events P (A) = $\dfrac{1}{2}$, P(B) = $\dfrac{5}{8}$, P(A$\cup$B)= $\dfrac{3}{4}$ find P($\bar{A}\cap\bar{B}$)
       (a)   3/4
       (b)   1/4
       (c)   3/16
       (d)   None of these

90. Odds against to solve a problem for person A is 4 : 3 and for person B odds favour ratio is 7 : 5 find probability that problem solved
     (a)   11/21
     (b)   16/21
     (c)   17/31
     (d)   13/21

91. A Bag contains 6 Red and some Blue ball is probability of Blue ball is double of Red bare find the number of blue ball in Bag.
     (a)   10
     (b)   12
     (c)   14
     (d)   15

92. Two dice are rolled find probability that one dice have multiple of 3 other dice have multiple of 2
     (a)   2/3
     (b)   1/6
     (c)   1/3
     (d)   None of these

93. x   -20   -10   30   75   80
     p   3/20   1/5   1/2   1/10   1/20
     Find expected value of probability distribution
     (a)   20.5
     (b)   22.5
     (c)   21.5
     (d)   4.5

94. x varies poison distribution and $E(x^2) = 30$ find the variance of distribution
     (a)   7
     (b)   5
     (c)   30
     (d)   20

95. For normal distribution
     (a)   First and second Quartile have same distance from median
     (b)   Second and third Quartile have same distance from median
     (c)   First and third Quartile have same distance from median
     (d)   None of these

96. Binomial distribution tends to poison distribution with two parameters n and p as
     (a) $n \to \infty, p \to 0$
     (b) $p \to 0, np \to \lambda$
     (c) $n \to \infty, np \to \lambda$
     (d) $n \to \infty, p \to 0, np \to \lambda$

97. In normal distribution QD=6 find SD
     (a)   4
     (b)   9
     (c)   7
     (d)   6

98. A worker earn monthly 3000. The consumer price index of 1985 based on 1980 is 250 find the dearness allowance :
    (a) Rs. 4,000
    (b) Rs. 4,800
    (c) Rs. 5,500
    (d) Rs. 4,500

99. Fisher = 150
    Paache = 140
    Find Laspayres
    (a) 147.77
    (b) 156.25
    (c) 140.17
    (d) 138.08

100. A card is drawn from playing cards find the probability that it would be Red or King.
    (a) 1/4
    (b) 4/13
    (c) 7/13
    (d) 1/2

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