CA (FOUNDATION)

BUINESS MATHEMATICS

MOCK TEST **MARKS- 100**

QUESTION PAPER

DURATION- 180 MINUTES

INSTRUCTIONS:

1. **All the questions are compulsory.**
2. **Properly mention Test no. on First Page and Page no. on every answersheet.**
3. **Working Notes are compulsory wherever required in support of your solution.**
4. **Do not copy any solution from material.**
5. **Attempt as much as you know to fairly judge your performance.**
6. **Please upload your Answer Sheet Horizontally.**
7. **Copy once get evaluated by Evaluator cannot be re-uploaded by the student.**
8. **Always Check correct Test No. of your subject while uploading answer sheet.**
9. **Handwriting should be clean**

1. The ratio of two quantities is 3:5, if the antecedent is Rs. 9000, the consequent will be…….
(a) Rs. 15,000
(b) Rs. 16,000
(c) Rs. 12,000
(d) Rs. 10,000

2. Simple interest on Rs. 2,000 for 5 months at 16% p.a. is _____.
(a) Rs. 133.33
(b) Rs. 133.26
(c) Rs. 134.00
(d) Rs. 132.09

3. An amount of Rs. 50,000 is to be distributed between workers and supervisory staff in the ratio of 3:2 as production incentive the supervisory staff would get production incentive of…….
(a) Rs. 20,000
(b) Rs. 15,000
(c) Rs. 12,000
(d) Rs. 18,000

4. Suppose a business executive was earning Rs. 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) Rs. 2096
(b) Rs.2906
(c) Rs. 2106
(d) Rs. 2306

5. A winning amount of Rs. 25,000 is distributed between X and Y, X got Rs. 10,000 and Y got the remaining. The winning sharing ratio is.....
(a) 2:5
(b) 3:2
(c) 3:4
(d) 2:3

6 . The future value of an annuity of Rs. 1,500 made annually for five years at interest rate 10% compounded annually is (Given that $(1.1)^5 = 1.61051$):
(a) Rs. 9517.56
(b) Rs. 9157.65
(c) Rs. 9715.56 ..
(d) Rs. 9175.65

7. Extreme values have _____ effect on mode.
(a) High
(b) low
(c) No
(d) None of these

8. Among the examinees in an examination 30%, 35% and 45% failed in Statistics, in Mathematics and in at least one of the subjects respectively. An examinee is selected at random. Find the probability that he failed in Mathematics only:
(a) 0.245
(b) 0.25
(c) 0.254
(d) 0.55

9. An article consists of two parts A and B. The manufacturing process of each part is such that probability of defect in A is 0.08 and that B is 0.05. What is the probability that the assembled product will not have any defect?
(a) 0.934
(b) 0.864
(c) 0.85
(d) 0.874

10. If 10 men, among whom are A and B, stand in a row, what is the probability that there will be exactly 3 men between A and B ?
(a) 11/15
(b) 4/15
(c) 1/15
(d) 2/15

11. Mr. X bought an electronic item for Rs. 1,000. What would be the future value of the same item after 2 years, if the value is compounded semi annually at 22% per annum?
(a) Rs. 1488.40
(b) Rs. 1518.07
(c) Rs. 2008.07
(d) Rs. 2200.00

12. 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) $\frac{11}{14}$
(b) $\frac{22}{49}$
(c) $\frac{31}{49}$
(d) $\frac{35}{49}$

13. What is the probability of making 3 correct guesses in 5 True-False answer type questions ?
(a) 0.4156
(b) 0.32
(c) 0.3125
(d) 0.5235

14. The overall percentage of failure in a certain examination is 0.30. What is the probability that out of a group of 6 candidates at least 4 passed the examination ?
(a) 0.74
(b) 0.71
(c) 0.59
(d) 0.67

15. The number of test of Adequacy is :
(a) 2
(b) 3
(c) 4
(d) 5

16. The consumer price index for 2006 on the basis of 2005 from the following data is :

Commodities	Quantities consumed in 2005	Price in 2005	Prices in 2006
A	6	5.75	6.00W

B	**6**	**5.00**	**8.00**
C	**1**	**6.00**	**9.00**
D	**6**	**8.00**	**10.00**
E	**4**	**2.00**	**1.50**
F	**1**	**20.00**	**15.00**

(a) 128.77
(b) 108.77
(c) 138.77
(d) 118.77

17. The manufacturing cost and selling price of a product are in the ratio of 3:4, if the profit per unit is Rs. 15, the manufacturing cost of the product is.....
(a) Rs. 60
(b) Rs. 45
(c) Rs. 75
(d) Rs. 55

18. If the sides of an equilateral triangle are shortened by 3 units, 4 units and 5 units respectively and a right triangle is formed, then the side of an equilateral triangle is:
(a) 6 units
(b) 7 units
(c) 8 units
(d) 10 units.

19. If variance of x is 5, then find the variance of (2 - 3x)
(a) 10
(b) 15
(c) 5
(d) -13

20. If α, β are the roots of the equation $x^2 + x + 5 = 0$ then $\frac{\alpha^2}{\beta} + \frac{\alpha}{\beta^2}$ is equal to
(a) $\frac{16}{5}$
(b) 2
(c) 3
(d) $\frac{14}{5}$

21. The probability of an event can assume any value between:
(a) 0 and 1
(b) - 1 and 0.
(c) - 1 and 1
(d) None of these

22. If $\frac{3}{x+y} + \frac{2}{x-y} = -1$ and $\frac{1}{x+y} - \frac{\uparrow}{x-y} = \frac{4}{3}$ then (x, y) is :
(a) (2, 1)
(b) (1,2)
(c) (-1,2)
(d) (- 2, 1)

23. In calculating the Karl Pearson's coefficient of correlation it is necessary that the data should be of numerical measurements. The statement is
(a) valid

(b) not valid
(c) both
(d) none

24. If difference between the roots of the equation $x^2 - kx + 8 = 0$ is 4, then the value of K is:
(a) 0
(b) ±4
(c) $\pm 8\sqrt{3}$
(d) $\pm 4\sqrt{3}$

25. Cost of sugar in a month under the heads raw materials, labour, direct production and others were 12, 20, 35 and 23 units respectively. What is the difference between the central angles for the largest and smallest components of the cost of sugar ?
(a) 72°
(b) 48°
(c) 56°
(d) 92°

26. The number of ways in which n books can be arranged on a shelf so that two particular books are not together is :
(a) (n - 2) × (n - 1)!
(b) (n - 2) × (n + 1)!
(c) (n - 1) × (n + 1)!
(d) (n - 2) × (n + 2)!

27. The difference between the Compound interest and Simple interest at 10% per annum for 4 years on Rs. 10,000 is Rs. _____.
(a) 650
(b) 640
(c) 641
(d) 600

28. In how many ways can the letters of the word FAILURE be arranged so that the consonants may occupy only odd positions?
(a) 576
(b) 476
(c) 376
(d) 276

29. For a normal distribution with mean 150 and S.D. 45; find Q, and Q_3:
(a) 119.35 and 190.65 respectively
(b) 119.65 and 180.35 respectively
(c) 180.35 and 119.65 respectively
(d) 123.45 and 183.65 respectively

30. Five bulbs-of which three are defective are to be tried in two lights-points in a dark-room. In how many trials the room shall be lighted?
(a) 10
(b) 7
(c) 3
(d) None of these

31. A lady travel at a speed of 20km/h and returned at quicker speed. If her average speed of the whole journey is 24km/h, find the speed of return journey (in km/h)
(a) 25
(b) 30
(c) 35
(d) 38

32. In how many ways can a party of 4 men and 4 woman be seated at a circular table, so that no two woman are adjacent?
(a) 164
(b) 174
(c) 144
(d) 154

33. In a class of 80 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) 44
(c) 36
(d) 28

34. The mean weight of 15 students is 110 kg. The mean weight of 5 of them is 100 kg. and of another five students is 125 kg. then the mean weight of the remaining students is :
(a) 120
(b) 105
(c) 115
(d) None of these

35. If $f(x) = 2x + 2$ and $g(x) = x^2$, then the value of fog (4) is:
(a) 18
(b) 22
(c) 34
(d) 128

36. When high values of one variable are associated with high values of the other & low values of one variable are associated with low values of another, then they are said to be
(a) positively correlated
(b) directly correlated
(c) both
(d) none

37. If set $A = \left\{x: \frac{x}{2} \in z, 0 \leq x \leq 10\right\}$,
$B = \{x: x$ is one digit prime number$\}$
and $C = \left\{x: \frac{x}{3} \in N, x \leq 12\right\}$
then $A \cap (B \cap C)$ is equal to -
(a) ϕ
(b) Set A
(c) Set B
(d) Set C

38. 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 of these

39. Daily demand for calculators is having the following probability distribution :

Demand :	**1**	**2**	**3**	**4**	**5**	**6**
Probability :	**0.10**	**0.15**	**0.20**	**0.25**	**0.18**	**0.12**

Determine the variance of the demand.
(a) 2.54
(b) 2.93
(c) 2.22
(d) 2.19

40. $\int_0^1 (e^x + e^{-x})$ **dx is :**
(a) $e - e^{-1}$
(b) $e^{-1} - e$
(c) $e + e^{-1}$
(d) None

41. Correlation coefficient can be found out by _____
(a) Scatter Diagram
(b) Rank Method
(c) both
(d) none.

42. $\int \frac{8x^2}{(x^3+2)^3}$ **dx is equal to:**
(a) $-\frac{4}{3}(x^3 + 2)^2 + C$
(b) $-\frac{4}{3}(x^3 + 2)^{-2} + C$
(c) $\frac{4}{3}(x^3 + 2)^2 + C$
(d) None of these

43. If the sum of n terms of a G.P. with last term 128 and common ratio 2 is 255, the value of n is
(a) 8
(b) 5
(c) 3
(d) None

44. If x = y log (xy), then $\frac{dy}{dx}$ **is equal to:**
(a) $\frac{x + y}{x\,(1 + \log xy)}$
(b) $\frac{x - y}{x\,(1 + \log xy)}$
(c) $\frac{x + y}{x\,(\log x + \log y)}$
(d) $\frac{x - y}{x\,(\log x + \log y)}$

45. Find the missing term of the number series 24, 60, 120, 210, ?
(a) 300
(b) 336
(c) 420
(d) 525

46. Given the observations : 4,9,11,14,37. The Mean deviation about the Median is
(a) 11
(b) 8.5
(c) 7.6
(d) 7.45

47. GO = 32, SHE = 49, then SOME will be equal to
(a) 56
(b) 58
(c) 62
(d) 64

48. How much amount is required to be invested every year 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. 4,50,000
(c) Rs. 48,000
(d) Rs. 50,000

49. If SUMMER is coded as RUNNER the code for WINTER will be
(a) SUITER
(b) VIOUER
(c) WALKER
(d) SUFFER

50. Rank correlation coefficient lies between
(a) 0 to 1
(b) –1 to +1 inclusive of these value
(c) –1 to 0
(d) both

51. If ROSE is written as TQUG, how BISCUIT can be written in that code?
(a) DKUEWKV
(b) CJTDVJU
(c) DKVEWKV
(d) DKUEWKY

52. The Interval ($\mu - 3\delta, \mu + 3\delta$) 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

53. If E = 5, PEN = 35, then PAGE = ?
(a) 27
(b) 28
(c) 29
(d) 36

54. A sum of Rs. 44,000 is divided into three parts such that the corresponding interest earned after 2 years, 3 years and 6 years may be equal. If the rates of simple interest are 6% p.a., 8% p.a. and 6% p.a. respectively, then the smallest part of the sum will be:
(a) Rs. 4,000
(b) Rs. 8,000

(c) Rs. 10,000
(d) Rs. 12,000

55. A man is performing yoga with his head down and legs up. His face is towards the West. In which direction, will his left hand be?
(a) North
(b) South
(c) East
(d) West

56. A person lends Rs. 6,000 for 4 years and Rs. 8,000 for 3 years at simple interest. If he gets Rs. 2,400 as total interest, the rate of interest is:
(a) 5%
(b) 4%
(c) 6%
(d) 7%

57. A child was looking for his father. He went 90 m towards East before turning to his right. Then, he went 20 m before turning to his right again to look for his father at his uncle's place 30 m from this point. His father was not there. Then, he went 100 m to the North before meeting his father in a street. How far from the starting point did the son meet his father? *
(a) 80 m .
(b) 100 m
(c) 140 m
(d) 200 m

58. Kishenkant walks 10 kilometres towards North. From there, he walks 6 kilometers towards South. Then, he walks 3 kilometres towards East. How far and in which direction is he with reference to his starting point ?
(a) 5 kilometres west
(b) 5 kilometres North-east
(c) 7 kilometres east
(d) 7 kilometres west

59. Jai is going towards North up to 5km he turned 90^0 clockwise and moved up to 4km and he took right fun moved up to 2km. Find his distance from the start place.
(a) 2km
(b) 3km
(c) 4km
(d) 5km

60. A compound interest on a sum for 2 years is Rs. 30 more than the simple interest at the rate of 5% per annum then the sum is:
(a) Rs. 11,000
(b) Rs. 13,000
(c) Rs. 12,000
(d) Rs. 15,000

61. Aditya walked 20 m towards North. Then he turned right and walks 30 m. Then he turns right and walk 35 m. Then he turns left and walk 15 m. Finally he turns left and walk 15 m. In which direction and how many meter is he from the starting point?
(a) 15 m West
(b) 30 m East
(c) 30 m West

(d) 45 m East

62. In a gathering seven members are sitting in a row. 'C' is sitting left to 'B' but on the right to 'D'. 'A' is sitting right to 'B'. 'F' is sitting right to 'E' but left to 'D'. 'FT is sitting left to 'E'. Find the person sitting in the middle.
(a) C
(b) D
(c) E
(d) F

63. How much investment is required to yield an Annual income of Rs. 420 at 7% p.a. Simple interest.
(a) Rs. 6,000
(b) Rs. 6,420
(c) Rs. 5,580
(d) Rs. 5,000

64. Five boys A, B, C, D and E are standing in a row, D is on the right of E. B is on the left of E, but on the right of A, B is on the left of C, who is standing on the extreme right. Who is standing in the middle?
(a) B
(b) C
(c) D
(d) E

65. A, B, C, D and E are sitting on a bench. A is sitting next to B, C is sitting next to D, D is not sitting with E who is on the left end of the bench. C is on the second position from the right. A is to the right of B and E. A and C are sitting together. In which position A is sitting?
(a) Between B and D
(b) Between B and C
(c) Between E and D
(d) Between C and E

66. Siva, Satish, Amar and Praveen are playing cards. Amar is to the right of Satish who is to the right of Siva. Who is to the right of Amar?
(a) Satish
(b) Amar
(c) Praveen
(d) Siva

67. Mr. X invests Rs. 90,500 in post office at 7.5% p.a. simple interest. While calculating the rate was wrongly taken as 5.7% p.a.
The difference in amounts at maturity is Rs. 9,774. Find the period for which the sum was invested:
(a) 7 years
(b) 5.8 years
(c) 6 years
(d) 8 years

68. How many terms of the G.P. 1, 4, 16 …. are to be taken to have their sum 341?
(a) 8
(b) 5
(c) 3
(d) None

69. A,R, P, 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 right of P ?
(a) A
(b) X
(d) Z
(c) S

70. A is the father of B. C is the daughter of B. D is the brother of B. E is the son of A. What is the relationship between C and E?
(a) Brother and Sister
(b) Cousins
(c) Niece and uncle
(d) Uncle and aunt

71. The number of calls arriving at an internal switch board of an office is 96 per hour. Find the probability that there will be :
(i) not more than 3 calls on the board,
(ii) at least three calls in a minute on the board. [Given : $e^{-1.6} = 0.2019$]
(a) 0.08 and 0.92 respectively
(b) 0.19 and 0.92 respectively
(c) 0.92 and 0.13 respectively
(d) 0.92 & 0.08 respectively

72. A and B are the young ones of C. If C is the mother of B but A is not the daughter of C, then what is the relationship between C and A?
(a) Nephew and Aunty
(b) Brother and Sister
(c) Mother and son
(d) Niece and Aunty

73. Nicky, who is Ronald's daughter, says to Irene. "Your mother Rita is the youngest sister of my father, who is the third child of Sylvester." How is Sylvester related to Irene?
(a) Maternal Uncle
(b) Father
(c) Grandfather
(d) Father-in-law

74. Deepak said to Nitin, "That boy playing with the football is the younger of the two brothers of the daughter of my father's wife". How is the boy playing football related to Deepak?
(a) Son
(b) Brother
(c) Cousin
(d) Brother-in-law

75. Javed's brother's sister's father's brother is Karim and Karim's daughter is Dolly. How is Javed related to Dolly?
(a) Brother
(b) Cousin
(c) Sister
(d) Uncle

76. On the average an experienced person does 7 units of work while a fresh one work 5 units of work daily but the employer has to maintain an output of atleast 35 units of work per day. The situation can be expressed as: .

(a) $7x + 5y < 35$
(b) $7x + 5y \leq 35$
(c) $7x + 5y > 35$
(d) $7x + 5y \geq 35$

77. Solution space of the inequalities $2x + y \leq 10$ and $x - y \leq 5$:
(i) includes the origin.
(ii) includes the points (4, 3)
which one is correct ?
(a) Only (i)
(b) Only (ii)
(c) Both (i) and (ii)
(d) None of the above.

78. If a, b, c are in A.P. as well as in G.P. then –
(a) They are also in H.P. (Harmonic Progression)
(b) Their reciprocals are in A.P.
(c) Both (a) and (b) are true
(d) Both (a) and (b) are false

79. On an average, experienced person does 5 units of work while a fresh person does 3 units of work daily but the employer has to maintain the output of atleast 30 units of work per day. The situation can be expressed as.
(a) $5x + 3y \leq 30$
(b) $5x + 3y \geq 30$
(c) $5x + 3y > 30$
(d) $5x + 3y = 30$

80. _____ gives the mathematical relationship of the variables.
(a) correlation
(b) regression
(c) both
(d) none

81. The average salary of 50 men was Rs. 80 but it was found that salary of 2 of them were Rs. 46 and Rs. 28 which was wrongly taken as Rs. 64 and Rs. 82. The revised average salary is :
(a) Rs. 80
(b) Rs. 78.56
(c) Rs. 85.26
(d) Rs. 82.92

82. Great advantage of _____ is that it can be used to rank attributes which can not be expressed by way of numerical value .
(a) concurrent correlation
(b) regression
(c) rank correlation
(d) none

83. Inter Quartile Range is _____ of Quartile Deviation.
(a) Half
(b) Double
(c) Triple
(d) Equal

84. Suppose your parent decides to open a PPF (Public Provident Fund) account in a bank towards your name with Rs. 10,000 every year starting from today for next 15 years. When you receive and get 8.5% per annum interest rate compounded annually. What is the present value of this annuity? (Give answer in Rs. without any fraction.)
(Given P (15,0.085) = 8.304236576)
(a) 83,042
(b) 1,66,084
(c) 93,042
(d) 8,30,423

85. The sum of squares of deviation from mean of 10 observations is 250. Mean of the data is 10. Find the co-efficient of variation.
(a) 10%
(b) 25%
(c) 50 %
(d) 0 %

86. If A be the A.M. of two positive unequal quantities X and Y and G be their G.M., then ;
(a) A < G
(b) A > G
(c) A ≤ G
(d) A ≥ G

87. Covariance measures _____ variations of two variables.
(a) joint
(b) single
(c) both
(d) none

88. When mean is 3.57 and mode is 2.13 then the value of median is _____.
(a) 3.09
(b) 5.01
(c) 4.01
(d) None of these

89. If the sum of n terms of a G.P. with first term 1 and common ratio 1/2 is 1+127/128, the value of n is _.
(a) 8
(b) 5
(c) 3
(d) None

90. If L_1 = highest observation and L_2 = smallest observation, then Coefficient of Range =
(a) $\frac{L_1 \times L_2}{L_1/L_2} \times 100$
(b) $\frac{L_1 - L_2}{L_1 + L_2} \times 100$
(c) $\frac{L_1 + L_2}{L_1 - L_2} \times 100$
(d) $\frac{L_1/L_2}{L_1 \times L_2} \times 100$

91. The equation of a line is 5x + 2y = 17. Mean deviation of y about mean is 5. Calculate mean deviation of x about mean.
(a) - 2
(b) 2

(c) -4
(d) None

92. The harmonic mean of 1, 1/2, 1/3 1/n is
(a) 1/(n + 1)
(b) 2/(n + 1)
(c) (n + 1)/2
(d) 1/(n 1)

93. If an amount is kept at simple interest, it earns an interest of Rs. 600 in first two years but when kept at compound interest it earns an interest of Rs. 660 for the same period, then the rate of interest and principal amount respectively are:
(a) 20%, Rs. 1,200
(b) 10%, Rs. 1,200
(c) 2Q%, Rs. 1,500
(d) 10%, Rs. 1,500

94. In a class of 11 students, 3 students were failed in a test. 8 students who passed secured 10,11, 20, 15, 12, 14, 26 and 24 marks respectively. What will be the median marks of the students':
(a) 12
(b) 15
(c) 13
(d) 13.5

95. The simple interest for a certain sum for 2 years at 10% per annum is Rs. 90. The corresponding compound interest is (In Rs.):
(a) 99
(b) 95.60
(c) 94.50
(d) 108

96. The variance of data : 3,4,5,8 is
(a) 4.5
(b) 3.5
(c) 5.5
(d) 6.5

97. In how many years will a sum of money become four times at 12% p.a. simple interest?
(a) 18 years
(b) 21 years
(c) 25 years
(d) 28 years

98. Let the mean of the variable 'x' be 50, then the mean of u = 10 + 5x will be :
(a) 250
(b) 260
(c) 265
(d) 273

99. The sum of n terms of two A.P.s are in the ratio of (7n-5)/(5n+17) . Then the _ term of the two series are equal.
(a) 12
(b) 6
(c) 3

(d) None

100. The sum invested at 4% per annum compounded Semiannually amounts to Rs. 7,803 at the end of one year, is:
(a) Rs. 7,000
(b) Rs. 7,500
(c) Rs. 7,225
(d) Rs. 8,000