THIRD SEMESTER B.Com./B.B.A. DEGREE EXAMINATION, NOVEMBER 2022

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19U BCM3 A11 / CC19U BBA3 A11 - BASIC NUMERICAL METHODS

(Commerce / BBA - Common Course)

(2019 Admission onwards)

Time : 2.5 Hours Maximum : 80 Marks

Credit : 4

Part A (Short answer questions)

Answer *all* questions. Each question carries 2 marks.

1. Solve $5(x - 3) = 45$

2. Solve $2x - y = 5$ and $3x - 4y = 10$

3. Solve $x^2 - 6x + 8 = 0$

4. What is unit matrix?

5. What you mean by positive and negative series?

6. What you mean by harmonic progression?

7. Find the 14th term of the series 13+17+21+25+……….

8. Find the rate of interest pa if the simple interest on a principal of Rs. 5000 is 800 for 4 years.

9. Calculate the amount and compound interest on Rs.10, 000 for 1year at 8% p.a. compounded half yearly.

10. If the 7% interest compounded 4 times in an year, what will be the effective rate?

11. Calculate the present value of Rs.50,000 to be received after 5 years, provided the interest rate is 9%.

12. A property investor takes out a mortgage of Rs. 50,0000 at an interest rate of 12% for 10 years. Compute EMI.

13. Average age of 8 men is increased by 2 years when one man whose age is 20 years is replaced by a fresh man. What is the age of the fresh man?

14. Why is standard deviation considered to be the best measure of dispersion?

15. What is symmetric distribution?

(Ceiling: 25 Marks)

Part B (Paragraph questions)

Answer *all* questions. Each question carries 5 marks.

16. Find the value of the determinant of the matrix $A = \begin{bmatrix} 3 & 4 & 2 \\ 0 & 1 & -3 \\ 2 & -2 & 8 \end{bmatrix}$

17. If the 5th and the 10th term of a GP are 32 and 1024 respectively find the first term and the common ratio.

18. Insert 5 geometric means between 2 and 1458.

19. The population of a country increases every year by 2.4% of the population at the beginning of that year. In what time will the population double itself?

20. Briefly explain future value and the formula used for calculate future value.

21. Compute median.   size: 5 8 10 15 20 25   f : 3 12 8 7 5 4

22. Find mode. Age: 20-25 25-30 30-35 35-40 40-45 45-50 f : 50 70 100 180 150 120

23. Calculate mean deviation for the following data.

0-10	10-20	20-30	30-40	40-50
5	8	15	16	6

(Ceiling: 35 Marks)

Part C (Essay questions)

Answer any *two* questions. Each question carries 10 marks.

24. Solve $8x + 5y - 22z = 0$ and $12x - 15y - 16z = 0$ and $5x + 6y - 11z = 13$

25. Find the Adjoint of Matrix $A = \begin{bmatrix} 0 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{bmatrix}$

26. Solving of simultaneous equations with the help of Matrices (Crammer's Rule)

    $5X - 6Y + 4Z = 15$
    $7X + 4Y - 3Z = 19$
    $2X + Y + 6Z = 46$

27. Calculate mean, median and mode Marks(below): 40 35 30 25 20 15 10 5 No of subjects: 50 45 40 30 60 10 7 3

(2 × 10 = 20 Marks)

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