24U330S (Pages: 2) Name: .....

Reg.No: .....

THIRD SEMESTER B.Com./B.B.A. DEGREE EXAMINATION, NOVEMBER 2025

(CBCSS - UG)

CC19UBCM3A11 / CC19UBBA3A11 - BASIC NUMERICAL METHODS

(Commerce / BBA - Common Course)

(2020 to 2023 Admissions - Supplementary/improvement)

Time : 2.5 Hours Maximum : 80 Marks

Credit : 4

Part A (Short answer questions)

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

1. What is symmetric matrix?
2. Find $5A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$
3. Find the 6^{th} term of 3/7,3/8,3/9,….
4. Find the compound interest Rs. 10,000 for 3 years at 5% p.a.
5. Find the compound interest for Rs 7000 for 4 years if interest is payable half yearly at 6% p.a.
6. Find the effective yield rate of interest if interest is calculated at 5% quarterly.
7. Rs.100 to be paid one year from one, where the expected rate of return is 5% per year, what worth in today's money?
8. A property investor takes out a mortgage of Rs. 500000 at an interest rate of 12% for 10 years. Compute EMI.
9. What are the types of averages?
10. What are the merits and demerits of geometric mean?
11. What is median?
12. How to calculate mode from continuous series?
13. Find coefficient of quartile deviation 170, 82, 110, 100, 150, 120, 200, 116, 250.
14. What are the merits and demerits of measures of dispersion?
15. State the positions of mean, median and mode in positively skewed and negatively skewed distribution.

(Ceiling: 25 Marks)

Part B (Paragraph questions)

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

16. Solve $x + y = 5 \; and \; 2x^2 - y^2 - 10x - 2xy + 28 = 0$.

17. Solve $x + 3y - z = 7, 4x - y + 2z = 9 \; and \; 3x + 2y + z = 13$.

18. Solve $x^2 - 4x + 3 = 0$.

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

20. Find the Co- factor of a Matrix $A = \begin{bmatrix} 2 & 3 & 4 \\ -1 & 5 & 1 \\ 5 & 0 & 3 \end{bmatrix}$.

21. The sum of three numbers in AP is 15. If 1.,3,9 are added to them respectively , the resulting numbers in GP. Find the numbers.

22. If the value of the car is depreciated 20% annually, what will be its estimated value at the end of 10th year if it is present value is Rs. 5000 ?

23. Mr. Helon took a loan of Rs. 1400 with simple interest forces many years as the rate of interest. If he paid Rs. 686 as interest at the end of the loan period. What is the rate of interest?

(Ceiling: 35 Marks)

Part C (Essay questions)

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

24. Solve 6x-y=15 and 10x-11y=18

    Solve 4x+5y=5x+9 and 3x=3y+5x-2

    Solve 4x+2y=10 and 5x+y=8

25. Solving of simultaneous equations with the help of Matrices.

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

26. A man borrow Rs. 1000 and agree to repay with an interest of Rs. 140 in 12 instalments, each instalment being less than the preceding one by Rs. 10. What should be his first instalment?

27. Find the sum of the following series.

    a) 1+3+9+27..... to 10 terms

    b) 1+1/2+1/4+1/8+..... to 12 terms

(2 × 10 = 20 Marks)

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