THIRD SEMESTER B.Com./B.B.A. DEGREE EXAMINATION, NOVEMBER 2023

(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 $7(25 - x) - 5x = 2(3x - 25) - 3x$

2. Solve $4x + 3y = 2x + 7 and 3x = 3y + 2x - 1$

3. Solve $4x^2 - 12x + 9 = 0$

4. What is idempotent matrix?

5. What you mean by sequence and series?

6. Which term of the series 2,1,1/2,……..is 1/2048?

7. Find the geometric mean between 2 and 8.

8. If Rohan pays an interest of Rs. 750 for 2 years on the sum of Rs. 4500, find the rate of interest.

9. Calculate the amount and compound interest on Rs.50, 000 for 5year at %5 p.a. compounded half yearly.

10. What effective rate will a stated annual rate of 8% yield when compounded semi annually?

11. What is present value of Annuity?

12. Note down the computation of Equated Monthly Installments?

13. What are the types of averages?

14. What is median?

15. Calculate standard deviation 2, 4, 8, 6, 10, 12.

(Ceiling: 25 Marks)

Part B (Paragraph questions)

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

16. Prove that $A - 4A - 5I = 0$

$$A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$$

17. If the second and 6th term of an HP are ½ and 1/11, find the 12th term.

18. Find the three numbers in AP whose sum is 9 and the product is -165

19. Mr A borrowed Rs 20,000 from a money lender but he could not repay any amount in a period of 4 years. So the money lender demanded Rs 26,500 from him. What is the rate of interest charged?

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

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

22. Calculate mean deviation for the following data. 0-10 5 10-20 8 20-30 15 30-40 16 40-50 6

23. Calculate coefficient of skewness from the following data. value: 6 12 18 24 30 36 42 F : 4 7 9 18 15 10 5

(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 Inverse of Matrix $D = \begin{bmatrix} 3 & 5 & 7 \\ 2 & -3 & 1 \\ 1 & 1 & 2 \end{bmatrix}$

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. The following are the daily wages is rupees of 20 employees of a firm 130, 62, 145, 118, 125, 76, 151, 142, 110, 98, 65, 116, 100, 103, 71, 85, 80, 122, 132, 95. The firm gives bonus of rupees 10, 15, 20, 25 and 30 for individuals in the respective wage groups exceeding Rs. 60 but no exceeding Rs. 80, Exceeding Rd 80 but not exceeding Rs100 and so on upto exceeding Rs.140 but not exceeding Rs. 160. Find the average bonus paid per employee.

(2 × 10 = 20 Marks)

****