THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

(CBCSS - UG)

CC19UBSH3A11 / CC20UBSH3A11 - BASIC NUMERICAL METHODS

(Hotel Management and Catering Science - Common Course)

(2019 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. Find two numbers whose sum is 30 and difference is 4.

2. Solve $x^2 - 7x + 12 = 0$, using factorization method.

3. What is column matrix?

4. Find the trace of the matrix $A = \begin{bmatrix} 5 & 2 & 3 \\ 2 & 1 & 3 \\ 1 & 3 & 2 \end{bmatrix}$

5. Find $\begin{bmatrix} 4 & 15 \\ 16 & 5 \end{bmatrix} - \begin{bmatrix} 1 & 3 \\ 2 & 5 \end{bmatrix}$

6. Find the inverse of $A = \begin{bmatrix} 4 & 2 \\ 3 & 1 \end{bmatrix}$

7. Which term of the series $93 + 90 + 87 + \ldots$ is zero?

8. Find the Arithmetic mean between 100 and 250.

9. Find 15th term of the sequence $3, -6, 12, -24, \ldots$

10. Find the sum of the series $2 + 4 + 6 + 8 + \ldots$ to n terms.

11. Find the Geometric meam between 6 and 24.

12. If 7% interest compounded quarterly, what will be the effective rate ?

13. Find the future value of a present sum of Rs.1000, after 5 years from now, with the interest rate 6% per annum.

14. Find the Geometric mean of 57.5, 87.75, 53.5, 73.5, 81.75

15. Find mode from the value 40, 25, 60, 35, 81, 75, 90, 10.

(Ceiling: 25 Marks)

Part B (Paragraph questions)

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

16. (i) Solve $x^2 - 4x - 12 = 0$

    (ii) Solve $x^2 + x - 6 = 0$

17. Find the sum of n terms of an $A.P.$ whose 7th term is 30 and 13th term is 54.

18. Calculate the total interest on Rs.500 for 73 days, Rs.720 for 14 weeks and Rs.900 for 3 months, all at 6% per annum.

19. An investor expects a perpetual sum of Rs.500 annually from his investment. What is the present value of this perpetuity, if his interest rate is 10%?

20. Find out the EMI for Rs.2 Lakh for the tenure of 2 years. The rate of interest is 20% per annum.

21. Find the mean deviation from the mean and its coefficient for the following values 5, 28, 33, 44, 83, 87, 96, 99, 25, 35, 82.

22. Find quartile deviation and inter quartile range.

Age	:	0-20	20-40	40-60	60-80	80-100
No of persons	:	4	10	15	20	11

23. Explain Skewness and Kurtosis

(Ceiling: 35 Marks)

Part C (Essay questions)

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

24. Solve by using crammer's rule $x + y + 2z = 9, 2x + 4y - 3z = 1, 3x + 6y - 5z = 0$

25. (i) What sum will amounts to Rs. 1000 in 2 years at 5% per annum, compound interest, payable half-yearly ?

    $ii)$ Find the compound interest on Rs. 8000 for 4 years if interest is payable half-yearly for the first 3 years at the rate of 8% per annum and for the fourth year, the interest is payable quarterly at the rate of 8% per annum.

26. Compute median.

Size :	0-10	10-20	20-30	30-40	40-50	50-60	60-70
f :	8	12	20	23	18	7	2

27. For the following data

Marks	:	2	4	6	8	10
No. of students	:	8	10	16	9	7

    Find : (a) Standard Deviation.   (b) Variance.   (c) Coefficient of variation.

(2 × 10 = 20 Marks)

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