

22U344

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Name:

Reg.No:

THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19U BSH3 A11 / CC20U BSH3 A11 - BASIC NUMERICAL METHODS

(Hotel Management and Catering Science - 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 $4x + 7 = 3x + 12$.
2. Solve $x^2 + 9x + 18 = 0$, using factorization method.
3. What is null matrix?
4. Find the trace of $B = \begin{bmatrix} 1 & 3 & 2 \\ 3 & 1 & 4 \\ 2 & 1 & 2 \end{bmatrix}$
5. What is the formula for finding the n^{th} term of an A.P.?
6. Find the Arithmetic mean between 7 and 16.
7. Define Geometric progression.
8. Find the sum at the end of 4 years for Rs.10,000 at 10% per annum, compound interest.
9. What effective rate will a stated nominal rate of 6% yield when compounded semi-annually ?
10. Calculate the present value of Rs.50000 to be received after 5 years, provided the interest rate is 9%.
11. Define annuity.
12. What are the merits and demerits of geometric mean?
13. What is mean deviation?
14. Find the range of 2, 4, 8, 6, 10, 12.
15. Explain two measures of skewness commonly used.

(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 AB and BA if $A = \begin{bmatrix} 6 & 9 \\ 2 & 3 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 6 & 0 \\ 7 & 9 & 8 \end{bmatrix}$
18. Find the rank of the matrix $A = \begin{bmatrix} 5 & 2 & 1 \\ 0 & 1 & 3 \\ 2 & 1 & 0 \end{bmatrix}$
19. Find the sum of 15 terms of the series $3 + 33 + 333 + 3333 + \dots$
20. Find the 8th term of the Harmonic progression $\frac{1}{2}, \frac{1}{4}, \frac{1}{6}, \dots$
21. Calculate the present value of a growing perpetuity, where the payment in the first period is Rs.100, fixed growth rate is 3% and the annually discount rate is 7%.
22. Compute median.
Size : 5 8 10 15 20 25
f : 3 12 8 7 5 4
23. 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

(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) Find the sum of all 3 digits natural numbers which are divisible by 9.
(ii) How many terms of the series $-8 - 4 + 0 + \dots$ must be taken so that the sum is 132?
26. (i) A man deposite a certain sum of money into a bank. It amounts Rs.12325 in 8 years and amonts to Rs.13565 in 10 years . Find the sum invested.
(ii) Mr. A lent a simple interest, Rs.7200 partly at 6% per annum and partly at 7% per annum. If the interest recieved after one year is Rs.450, how much did he lend at different rate of interest ?
27. Find mode.
Marks : 5-10 10-15 15-20 20-25 25-30
No of students : 2 3 5 4 1

(2 × 10 = 20 Marks)
