Reg. No ....   Name **24U221**

B B A DEGREE END SEMESTER EXAMINATION - MARCH 2024
SEMESTER 2 - INTEGRATED MARKETING AND NEW MEDIA
COURSE : **19U2CRBBA4** - BUSINESS MATHEMATICS
(For Regular - 2023 Admission and Improvement / Supplementary – 2022/2021/2020 Admissions)

Time : Three Hours   Max. Marks: 60

PART A
Answer All (1 mark each)

1. Define the term scalar matrix.
2. Find the common difference if the first and third terms of an AP are 4 and 14 respectively.
3. Explain the term skew symmetric matrix with help of an example.
4. Find two Geometric means between 1 and 8.
5. Explain the term Prime Number with the help of examples.
6. Find the roots of the quadratic equation $9x^2 = 4$
7. If theprice of petrol is dropped from Rs90. to Rs.85.5 in a day , find the percentage of decrease.
8. Identify the sub duplicate ration of 49 : 81

                                                                         (1 x 8 = 8)

PART B
Answer any 6 (2 marks each)

9. If the cost of a product is 12500/- and if the seller is looking for a 12% margin what the selling price?

10. Find the product of the matrix A $= \begin{bmatrix} 1 & 2 & -1 \\ 2 & 0 & 1 \end{bmatrix}$ and the matrix B $= \begin{bmatrix} 3 & 1 \\ 0 & -1 \\ -2 & 3 \end{bmatrix}$

11. The product of two consecutive even integers are equal to 288 , Find the numbers.
12. Explain the term present value and future value of annuity.
13. Define the term diterminant of a matrix with the help of an examples.
14. Express the number 23 in binary number system and octal number system.
15. Solve the linear equation using substitution method.
    I) 3x + 2y = 2
    II) $y + 8 = 3x$
16. Insert two Arithmetic means between 4.5 and 18

                                                                         (2 x 6 = 12)

PART C
Answer any 4 (5 marks each)

17. Find the inverse of the 2x2 matrix A= $\begin{bmatrix} 3 & 1 \\ 4 & 2 \end{bmatrix}$

18. Explain the multiplicative property of integers.
19. Find the 20th term of the arithmetic progression 15, 13, 11,.......Calculate the number of terms required to make the sum to be Zero.

20. Solve the following system of equations using the substitution method.
    x+2y-7=0
    2x-5y+13=0

21. What will Rs.1500 amount to in three years if it is invested in 20% p.a. compound interest, interest being compounded annually?

22. Insert 2 geometric means between square root of 2 and 2

(5 x 4 = 20)

PART D
Answer any 2 (10 marks each)

23. Find the cofactor matrix of the matrix A = $\begin{bmatrix} 1 & 9 & 3 \\ 2 & 5 & 4 \\ 3 & 7 & 8 \end{bmatrix}$

24. Discuss the applications of mathematics in business.

25. If the simple interest paid by a bank for a certain sum of amount for 1 year at 15% interest rate is Rs 4500.
    i) Find the sum.
    ii) Find the difference between the compound interest calculated on half yealy basis and quartely basis for a duration of one year,
    if the amount and rate of interest reamain the same.

26. Find three numbers in G.P. such that their sum is 21, and the sum of their squares is 189.

(10 x 2 = 20)