483111

DCBC202

Reg. No. | | | | | | | | |

II Semester B.Com./LSCM/TandT/IAS and B.B.A. Degree Examination, September - 2023

COMMERCE

Business Mathematics

(Semester NEP-Scheme Regular)

Time : 2½ Hours **Maximum Marks :60**

***Instructions to Candidates*:**

Answer should be completely written in English Only.

SECTION - A

Answer any FIVE of the following questions. Each question carries 2 marks. **(5×2=10)**

1. a) What is a prime number?

b) What is unit Matrix?

c) Find the compound interest on Rs.3,000 for 3 years @ 4% p.a.

d) Find the 15^{th} term of an AP 1,3,5,---

e) LCM and HCF of 2 numbers are 96 and 16 respectively and one of them is 48, find the other number.

f) Find the value of $x: 4x^2 - 9 = 0$

g) If $B = \begin{bmatrix} 2 & -1 \\ 3 & 2 \end{bmatrix}$, find B^2.

SECTION - B

Answer any FOUR of the following questions. Each question carries 5 marks. **(4×5=20)**

2. If $A = \begin{bmatrix} -2 & 1 \\ 0 & 3 \end{bmatrix}$, prove $2A^2 - 3A - 7I = 0$.

3. Solve by formula method: $15x^2 + 16x - 15 = 0$.

[P.T.O.

4. If the 5th term of a G.P is 81 and the 2nd term is 24, find the G.P.
5. Find the compound interest on Rs. 20,000@ 6% p.a. for 4 years. What is the simple interest on the same amount?
6. A number is divided into 3 parts in the ratio of 2:3:4 , if the third part is 20; what are the others?

SECTION - C

Answer any TWO of the following questions. Each question carries 12 marks. **(2×12=24)**

7. a) Find the inverse of A if

$$A=\begin{bmatrix} -5 & -4 \\ 6 & 11 \end{bmatrix}$$

b) Solve by Crammer's rule:

$$6x+5y=2$$
$$4x-3y=14$$

8. a) The banker's gain on a bill due in 4 months discounted at 15% is Rs. 720. Find TD, BD and Face value of bill.

b) A sum of money amounts to Rs. 855 in 3½ years @ 4% p.a. SI. Find the sum.

9. a) Solve by Factorisation method:

$$x^2+3x-28=0.$$

b) The sum of 3 numbers in A.P. is - 24 and their product is 288. Find the numbers.

SECTION - D

Answer any ONE of the following question. Each question carries 6 marks.(1×6=6)

10. Demonstrate the application of matrices in solving business problems.
11. Following is the overhead allocation of 3 production departments and 2 Service departments namely X,Y,Z, A and B respectively.

X-Rs. 15,100; Y-Rs. 14,400; Z-Rs.19,300; A - Rs.9,250 and B-Rs. 3,150

Distribute the overheads of service departments to production departments using simultaneous equation method.

	X	Y	Z	A	B
Service Dept. 'A'	20%	30%	40%	-	10%
Service Dept 'B'	40%	20%	30%	10%	-