

**II Semester B.Com. (Logistics and Supply Chain Management)**  
**Examination, October/November 2022**  
**(NEP)**  
**COMMERCE**  
**Business Mathematics and Logical Reasoning**

Time : 2½ Hours

Max. Marks : 60

**Instruction : Answer should be written only in English.**

## SECTION – A

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

- a) What is linear equation ?
- b) Find the LCM of 16, 24 and 48.
- c) Find the 4<sup>th</sup> proportion of 6, 14 and 15.
- d) What is compound interest ?
- e) What is diagonal matrix ? Give an example.
- f) What is progression ?
- g) Which number should come next in the series 48, 24, 12, \_\_\_\_\_ ?  
 A) 8                      B) 6                      C) 4                      D) 2

## SECTION – B

Answer **any three** of the following questions. **Each** question carries **4** marks. **(3×4=12)**

2. If  $A = \begin{bmatrix} 2 & 5 \\ 3 & 1 \end{bmatrix}$  and  $B = \begin{bmatrix} 1 & 4 \\ 7 & 8 \end{bmatrix}$ , find AB and BA.
3. Which term of the series 7, 10, 13, ..., 151 ?
4. What is TD and BD on a sum of Rs. 1,650 due after 8 months @ 15% p.a. ?
5. Find the compound interest on Rs. 2,500 @ 4% p.a. compounded annually for 5 yrs.
6. If  $A = \{a, b, c, e\}$ ,  $B = \{a, b, x, y\}$ , find a)  $A \cup B$  b)  $A \cap B$ .



## SECTION – C

Answer **any three** of the following questions. **Each** question carries **10** marks. **(3×10=30)**

7. 30 kg of commodity A and 26 kg of commodity B together cost Rs. 7,100 and 25 kg of commodity A and 13 kg of commodity B together cost Rs. 5,050. Find the cost price of each per kg.

8. Find the present value, True discount, Banker's discount and Banker's Gain on a bill of Rs. 10,900 due in 9 months at 5% per annum.

9. Solve for x and y by using Cramer's rule.

$$6x - 7y = 5$$

$$9x - 5y = 13.$$

10.  $A = \begin{bmatrix} 1 & 5 & 6 \\ 7 & 8 & 9 \\ 0 & 1 & 2 \end{bmatrix}$ ,  $B = \begin{bmatrix} 4 & 2 & 3 \\ 0 & 1 & 2 \\ 3 & 4 & 5 \end{bmatrix}$ ,  $C = \begin{bmatrix} 2 & 3 & 1 \\ 1 & 4 & 5 \\ 3 & 8 & 6 \end{bmatrix}$ . Find

a)  $A + B$

b)  $A - B$

c)  $A + C$

d)  $A + B + C$ .

11. Find the present value of an annuity consisting of cash flows of Rs. 4,000 per annum for 6 yrs. The rate of interest being 10% compounded annually.

## SECTION – D

Answer **any one** of the following sub-question. **Each** question carries **8** marks. **(1×8=8)**

12. 5 years ago father was 5 times as old as his son and in 3 years he will be 3 times as old as his son. Find their present ages.

OR

4 workers earn Rs. 2,250 as wages in 6 days. At the same ratio how much will 8 workers will earn in 9 days ?