SE – 105

I Semester B.B.A. Examination, January 2025
(SEP 2024 – 25)
BUSINESS ADMINISTRATION
BBA 1.4 : Quantitative Analysis for Business

Time : 3 Hours

Max. Marks : 80

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

SECTION – A

Answer **any seven** sub-questions. **Each** sub-question carries **2** marks. **(7×2=14)**

1. a) Divide Rs. 2,40,000 between A and B in the ratio of 5 : 7.

   b) Solve for x : $x + (3 + x) = 5$.

   c) Give the meaning of equation.

   d) If $A = \{2, 3, 4, 5\}$ $B = \{c, d, e, f\}$, find $A \cup B$.

   e) In a survey of 60 people, 25 liked tea, 30 liked coffee and 10 liked both. How many people liked only tea ?

   f) Find out simple interest on Rs. 10,000 for 7 years at 5% p.a.

   g) Write the order of the following matrices :

$$B = \begin{bmatrix} 1 & 2 & -5 \\ 0 & 5 & 0 \end{bmatrix}$$

   h) Evaluate the following :

$$|A| = \begin{vmatrix} 4 & 3 \\ 2 & 1 \end{vmatrix}$$

   i) Find the number of ways 2 projects can be selected from a class of 15 students.

   j) Calculate 25% of Rs. 90.

SECTION – B

Answer **any three** of the following questions. **Each** question carries **eight** marks. **(3×8=24)**

2. Let A = {a, b, d, e}, B = {b, c, e, f) and C = {d, e, f, g}. Verify

   1) $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

   2) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

3. $7(x - 2) + 8(x - 3) - 22 = x + 10$ find x.

4. How many different ways the letter of the word "UNIVERSITY" be rearranged in permutations method ?

5. Solve by Cramer's rule.

   $3x - 7 = 6y$

   $2x - 15 = -3y$.

6. A machine bought for Rs. 60,000 is depreciated at 10% for 6 years. To make up the loss due to depreciation a sinking fund is created by setting a side of many years. What is the value of each payment if the accumulated amount in the fund is equal to total depreciation, if the interest is 5% compounded annually ?

SECTION – C

Answer **any three** questions. **Each** question carries **fourteen** marks. **(3×14=42)**

7. a) If 30 men working 8 hrs a day can do a piece of work in 24 days, in how many days 18 men working 10 hours a day will finish double the work ?

   b) By selling an article for Rs. 121 a dealer gains 10%, what is the percentage of profit or loss, if he has sold the article for Rs. 104.50 ?

8. a) Solve equation by Elimination method :

   $3x + 4y = 4$

   $5x + 7y = 4$

   b) In a group of 60 people, 27 like coffee and 42 like tea and each person likes at least one of the two drinks. How many like both coffee and tea ?

9. a) A committee of 6 members is to be chosen from 9 teachers and 4 students. In how many ways this can be done if

   i) the committee contains exactly 3 students.

   ii) there is to be a majority of teachers.

   Workout under both permutations and combinations method.

   b) If $A = \begin{bmatrix} 1 & 5 & 6 \\ 7 & 8 & 9 \\ 0 & 1 & 2 \end{bmatrix}$ $B = \begin{bmatrix} 4 & -2 & 3 \\ 0 & 1 & 2 \\ 3 & 4 & 5 \end{bmatrix}$ $C = \begin{bmatrix} 2 & 3 & 1 \\ 1 & 4 & 5 \\ 3 & 8 & 6 \end{bmatrix}$,

   Find

   i) $2A + B$

   ii) $A - B$

   iii) $A + C$

10. a) Compute simple and compound interest on Rs. 5,000 at 5% rate of inte p.a. for 3 years.

   b) Find out the present value of bond if it matures after 4 years and Rs. 80 every year with a maturity value of Rs. 120 and if the capitaliz rate is 8%.

11. a) Solve by formula : $5p^2 - 24p - 5 = 0$.

   b) If $A = \begin{bmatrix} 1 & 1 & -2 \\ 2 & 1 & -3 \\ 5 & 4 & -9 \end{bmatrix}$, find $|A|$.