



# ST. FRANCIS DE SALES COLLEGE

A FRANSALIAN INSTITUTE OF HIGHER EDUCATION **AUTONOMOUS**

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**END SEMESTER EXAMINATION - DECEMBER 2024**

**BUSINESS ADMINISTRATION - I SEMESTER BBA**

**24BBA16A: QUANTITATIVE ANALYSIS FOR BUSINESS**

**Time: 3 Hour**

**Max. Marks: 80**

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

## SECTION-A

1. Answer any **SEVEN** out of **TEN** questions. Each question carries 2 Marks. **(7X2=14)**

- A white board price is reduced by 20% in a sale. The old price was Rs.150. Find the new price.
- Write the power set of  $B = \{8,9,10\}$ .
- Find the value of  $8P_3$  and  $8C_3$ .
- If  $A = \begin{bmatrix} 5 & 3 \\ 4 & 6 \end{bmatrix}$  and  $B = \begin{bmatrix} 6 & 8 \\ 9 & 1 \end{bmatrix}$ , then find  $2A + 3B$ .
- X invests Rs.1000 for 3 years in a savings account that pays 10% interest per annum. Calculate the future value.
- Find the transpose of the matrix  $A = \begin{bmatrix} 1 & 3 & 6 \\ 2 & 4 & 5 \\ 7 & 9 & 8 \end{bmatrix}$ .
- How many arrangements are possible from the word 'NUMBER' when repetition is allowed?
- The sum of 6 times a number and 5 times a number is 66. Which is that number?
- In a basket, 15% of 300 oranges are bad. How many oranges of the basket are bad?
- If  $5:20::3:x$ , then find the value of  $x$ .

## SECTION-B

Answer any **THREE** out of **FIVE** questions. Each question carries 8 Marks. **(3X8=24)**

- If we divide Rs.1200 among three persons A, B and C in the ratio 3:4:5, how much will each person get?
  - Two numbers are in the ratio 5:8. If the sum of the numbers is 195. Find the numbers.
- Solve by elimination method  $x + y = 15$  and  $3x - y = 21$ .
  - Solve by substitution method  $2x - y = 5$  and  $x - 4y + 1 = 0$ .
- A committee of 3 persons is to be constituted from a group of 2 men and 3 women. In how many ways can this be done? How many of these committees would consist of 1 man and 2 women?
  - In how many ways can a team of 2 boys and 3 girls be selected from 5 boys and 4 girls?



5. Find the adjoint of  $\begin{bmatrix} 12 & 15 & 10 \\ 2 & 3 & 6 \\ 1 & 5 & 4 \end{bmatrix}$ .

6. Find out the present value of Rs.10,000 receivables after 3 years at the rate of 10 % interest. Calculate semi-annually.

### SECTION-C

Answer any THREE out of Five questions. Each question carries 14 Marks.

(3X14=42)

7. a. Define a proportion and explain the different properties of proportion with examples.  
b. A man can sharpen 12 pencils in 15 minutes. How long will it take for him to sharpen 96 pencils?
8. a. Solve by formula method  $5(x-2)^2 - 6 = -13(x-2)$ .  
b. Solve by factorization method  $3x^2 - 16x + 5 = 0$ .
9. a. Find  $r$  if  $10P_r + 1 : 11P_r = 30 : 11$ .  
b. If  $5P_r = 2.6P_{r-1}$ . Find  $r$ .
10. a. Find the value of  $x$  in the determinant if  $\begin{vmatrix} 1 & 2 & 3 \\ 4 & x & 6 \\ 7 & 8 & 9 \end{vmatrix} = 0$ .  
b. Solve by Cramer's rule  $3x - 7 = 6, 2x - 15 = -3y$ .
11. a. At what percentage rate per annum, Rs.640 amounts to Rs.744.40 in 2 years, compounding yearly?  
b. Find the difference between simple interest and compound interest on Rs.5000 for 5 years, charging half yearly at 6% p.a.

