



# 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

(AVIATION MANAGEMENT)

24BBA16B: QUANTITATIVE ANALYSIS FOR BUSINESS

Time: 3 Hours

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.
- If  $5:20::3:x$ , then find the value of  $x$ .
- If  $3(4x+1) - (4x-1) = 2(x+5)$ , then solve for  $x$ .
- Write the power set of  $B = \{8,9,10\}$ .
- Evaluate  $\frac{n!}{r!(n-r)!}$  when  $n = 5$  and  $r = 2$ .
- 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  $2A + 3B$ .
- Find the transpose of the matrix  $A = \begin{bmatrix} 1 & 3 & 6 \\ 2 & 4 & 5 \\ 7 & 9 & 8 \end{bmatrix}$ .
- Find the simple interest on Rs.2000 for 2 years at 10% p.a.
- What is the value of irredeemable debenture which has Rs.50 as the interest for an infinite period with the discount rate at 10%?

## SECTION-B

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

- The attendance at a concert increased from 500 people one year to 600 people the next year. What is the percentage difference between them?
  - Two quantities are in the ratio 3:4. If 5 is added to each of the two terms, the new ratio obtained is 4:5. Find the two quantities.
- Solve the equation by factorization method  $x^2+6x+8 = 0$ .
  - If  $U = \{1,2,3,4,5,6,7,8,9,10\}$ ,  $A = \{3,4,5,6\}$ ,  $B = \{1,2,3,4\}$ . Find the following:  
i)  $A'$  ii)  $A - B$  iii)  $B - A$  iv)  $B'$ .



4. a. Find 'n' if  ${}^{n-1}P_3 : {}^nP_4 = 1:9$ .

b. In how many ways can a team of 3 boys and 3 girls be selected from 5 boys and 4 girls?

5. a. Find y if 
$$\begin{vmatrix} -3 & -6 & 1 \\ 5 & y & -2 \\ 2 & -3 & 5 \end{vmatrix} = 7.$$

b. Find inverse of  $\begin{bmatrix} 12 & 15 \\ 2 & 3 \end{bmatrix}$ .

6. a. Find the compound interest on Rs.2500 for 2 years at 12% p.a.

b. 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. If population of a town increased from 1200 to 1380. What will be the % change?  
b. A worker earns Rs.5000 for 8 days of work. How much will the worker earn in 15 days?

8. a. Solve by substitution method  $x - y = 5$  and  $4x - y = 2x + 13$ .  
b. In a group of 250 students of a college, 77 takes English, 109 takes Economics, 75 take Sociology, 26 takes English as well as Economics, 24 take English as well as Sociology, 30 takes Economics as well as Sociology and 11 take all three subjects. How many of the 250 students are not taking any of the three subjects

9. a. In how many ways can 5 red and 4 white balls be selected from a bag containing 10 red and 8 white balls?

b. Find r if  ${}^{10}P_{r+1} : {}^{11}P_r = 30 : 11$ .

10. a. Prove that  $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$  satisfies the equation  $A^2 - 4A - 5I = 0$ , where  $I = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ .

b. Solve by Cramer's rule:  $3x - 7y = 6$ ,  $2x - 15 = -3y$ .

11. a. Find the difference between simple interest and compound interest on Rs.12000 for 3 years, charging half yearly at 5% p.a.

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

