



ST. FRANCIS DE SALES COLLEGE

A FRANSALIAN INSTITUTE OF HIGHER EDUCATION **AUTONOMOUS**

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END SEMESTER EXAMINATION – NOV/DEC 2025

BUSINESS ADMINISTRATION – I SEMESTER BBA (Repeaters)

24BBA16A: QUANTITATIVE ANALYSIS FOR BUSINESS

Time: 3 Hours

Max. Marks: 80

Instruction: Answers should be written in English only.

SECTION-A

1. Answer any SEVEN questions. Each question carries TWO marks.

(7X2=14)

- 20 % of 500 apples are bad. How many apples are bad?
- Find the fourth proportion of 6:8:9.
- Write the power set of $A = \{3, 4, 5\}$
- $3(4x+1) - (4x-1) = 2(x+5)$. Solve for x.
- Evaluate $\frac{n!}{r!(n-r)!}$ when $n = 5$ and $r = 2$
- Find the value of ${}^{14}P_4$
- If $A = \begin{bmatrix} 2 & 3 \\ 1 & -1 \end{bmatrix}$ and $B = \begin{bmatrix} 0 & -3 \\ -1 & 3 \end{bmatrix}$. Find $A + B$.
- 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 debenture which has an indefinite period with the interest amount of Rs.80 per year with the capitalization rate of 6 %.

SECTION-B

Answer any THREE questions. Each question carries EIGHT marks.

(3X8=24)

- A company's revenue decreased from Rs.15,00,000 to Rs. 10,00,000. Calculate the % difference between them.
 - It takes 6 hours for 8 people to paint a house. How long will it take for 12 people to paint the same house?
- If $U = \{1,2,3,4,5,6,7,8,9,10\}$, $A = \{3,4,5,6\}$, $B = \{1,2,3,4\}$. Find out i) A' ii) $A-B$ iii) $B-A$ iv) B' .
 - Solve $4x - y = 2$, $-3x + 2y = 1$ by substitution method.
- If ${}^nC_9 = {}^nC_8$. Find ${}^nC_{17}$.
 - In how many ways can 5 red and 4 white balls be selected from a bag containing 10 red and 8 white balls.



5. a. Find the adjoint of $\begin{bmatrix} 3 & 4 \\ 5 & 8 \end{bmatrix}$
- b. If $A = \begin{bmatrix} 3 & 4 & 7 \\ 9 & 0 & 5 \\ -6 & -8 & -5 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 2 & 5 \\ 3 & 7 & 9 \\ 3 & -2 & -7 \end{bmatrix}$. Find $4A + 2B$.
6. a. Mrs. Sheela borrowed Rs.30000 for 6 years. Calculate Compound interest at 12 % p.a. reckoned quarterly.
- 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** questions. Each question carries **FOURTEEN** marks (3X14=42)

7. a. Define a ratio and explain the different types of ratios with examples.
- b. A worker earns Rs. 5000 for 8 days of work. How much will the worker earn in 15 days?
8. a. Solve $x^2 + x - 6 = 0$ by formula method.
- b. In a survey of 250 people, 90 people watch Netflix, 80 people watch Amazon prime, and 70 people watch Disney +. 40 people watch both Netflix and Amazon prime, 30 people watch both Amazon prime and Disney +, and 20 people watch both Netflix and Disney+. 10 people watch all three services. How many people watch at least one of these streaming services?
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 Cramers rule $3x - 7y = 6, 2x - 15 = -3y$
11. a. 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 %.
- b. A person deposited Rs.6200 on June 20, 2018. It amounted to Rs. 6250 on September 1, 2018 at the rate of simple interest. Find the rate of interest.

