LGS GROUP OF COLLEGES

M-2 XI Chapter # 3, Exercise 4.1,4.2 (PAPER CODE #1215)

Class: FSC/ICS Part 1 Session: 2024 -2026

Date: 6-12-2025

Subject: Mathematics	Name: _____	Roll No:
Time: 15 Minutes	Objective Type	Marks = 8

OBJECTIVE TYPE

Note: Four possible answer A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question. **$(1 \times 8 = 8)$**

1	Let 'A' be a square matrix of order 3×3, and $\|A\| = 2$, then $\|2A\|$ is equal to: A. 12 B. 16 C. 8 D. 4
2	If A is a square matrix of order 2 ,then $\|KA\|$ = _____ A. $K\|A\|$ B. $K^3\|A\|$ C. $K^2\|A\|$ D. $\|A\|$
3	The trivial solution of homogeneous linear equation is: A. $(0,0,1)$ B. $(0,1,0)$ C. $(1,0,0)$ D. $(0,0,0)$
4	If $\begin{vmatrix} a & b \\ c & d \end{vmatrix} = 2$, then $\begin{vmatrix} b & a \\ d & c \end{vmatrix}$ = _____ A. 2 B. -2 C. ± 2 D. 0
5	If $\begin{vmatrix} k & 4 \\ 4 & k \end{vmatrix} = 0$ then the value of k is : A. ± 16 B. 0 C. ± 4 D. ± 8
6	If $4^x = \frac{1}{2}$, then $x =$ _____ A. $\frac{1}{2}$ B. $-\frac{1}{2}$ C. 2 D. -2
7	A quadratic equation has degree: A. 0 B. 1 C. 2 D. 3
8	The number of roots of polynomial equation $8x^6 - 19x^3 - 27 = 0$ are : A. 2 B. 4 C. 8 D. 6

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Subject: Mathematics	**Name: _____**	**Roll No:**
Time: 45 Minutes		**Marks = 27**

SUBJECTIVE TYPE

SECTION - 1

2. Attempt any THREE SHORT Questions: **(3 × 2 = 6)**

i	Define the term Unit Matrix or Identity Matrix with example
ii	$A = \begin{bmatrix} i & 1+i \\ 1 & -i \end{bmatrix}$, find $(\overline{A})^t$
iii	Solve the given equations $\left.\begin{matrix} 3x - 5y = 1 \\ -2x + y = -3 \end{matrix}\right\}$
iv	State two properties of a square matrix when $\lvert A\rvert = 0$
v	If $A = \begin{bmatrix} i & 0 \\ 1 & -i \end{bmatrix}$, show that $A^4 = I_2$

3. Attempt any THREE SHORT Questions: **(3 × 2 = 6)**

i	Without expansion show that $\begin{vmatrix} 1 & a^2 & \frac{a}{bc} \\ 1 & b^2 & \frac{b}{ca} \\ 1 & c^2 & \frac{c}{ab} \end{vmatrix} = 0$
ii	Find the values of x, if $\begin{vmatrix} 3 & 1 & x \\ -1 & 3 & 4 \\ x & 1 & 0 \end{vmatrix} = -30$
iii	Solve $x(x+7) = (2x-1)(x+4)$
iv	Solve the equation $x^2 - 2x - 899 = 0$ by completing the square
v	What are the reciprocal equations?

SECTION – II

Attempt any three LONG Questions: **$(3 \times 5 = 15)$**

4	Solve the system of linear equation: $\left.\begin{matrix} 2x_1 - x_2 + x_3 = 8 \\ x_1 + 2x_2 + 2x_3 = 6 \\ x_1 - 2x_2 - x_3 = 1 \end{matrix}\right\}$ by Cramer's rule
5	Prove that $\begin{vmatrix} b+c & a & a^2 \\ c+a & b & b^2 \\ a+b & c & c^2 \end{vmatrix} = (a+b+c)(a-b)(b-c)(c-a)$
6	Solve the equation $4^x + 3 \cdot 2^{x+3} + 128 = 0$
7	Solve the equation $(x-a)(x-b) + (x-b)(x-c) + (x-c)(x-a) = 0$