

**Comprehensive Test Series-02
(Determinants -: Matrix method)**

XII

TIME: 1.5hr.

MM: 40

General Instructions:

- All Questions are compulsory.
 - Use of calculator is not permitted.
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Q.1 Using matrices, solve the equations

$$5x - 7y = 2$$

$$7x - 5y = 3$$

Q.2 Use matrix method to show that the system of equations

$$x + 3y = 5$$

$$2x + 6y = 8$$
 is inconsistent.

Q.3 Using matrix method, determine whether the following system of equations is consistent or inconsistent:

(i) $5x - y + 4z = 5$

$$2x + 3y + 5z = 2$$

$$5x - 2y + 6z = -1$$

(ii) $3x - y - 2z = 2$

$$2y - z = -1$$

$$3x - 5y = 3.$$

Q.4 Using matrices, solve the following system of equation:

$$3x - y + z = 5$$

$$2x - 2y + 3z = 7$$

$$x + y - z = -1$$

Q.5 The sum of three numbers is -1. If we multiply the second number by 2, third number by 3 and add them we get 5. If we subtract the third number from the sum of first and second numbers, we get -1. Represent it by a system of equations. Find the number using inverse of a matrix.

Q.6 Solve the following system of equations, using matrices.

$$\frac{2}{x} + \frac{3}{y} + \frac{10}{z} = 4$$

$$\frac{4}{x} - \frac{6}{y} + \frac{5}{z} = 1$$

$$\frac{6}{x} + \frac{9}{y} - \frac{20}{z} = 2$$

Q.7 Find A^{-1} , where $A = \begin{pmatrix} 4 & 2 & 3 \\ 1 & 1 & 1 \\ 3 & 1 & -2 \end{pmatrix}$. Hence solve the system of equations:

$$4x + 2y + 3z = 2, x + y + z = 1, 3x + y - 2z = 5.$$