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Education as a Service (EaaS)

Sample Question Paper - SET 1

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Class	XII	Subject	Mathematics (041)
Chapter	4 - Determinants	Time Allowed	15 Minutes
Maximum Marks	10	Date	_____

GENERAL INSTRUCTIONS:

1. This question paper contains **6 questions** from Chapter 4 - Determinants.
2. All questions are compulsory.
3. Question 1-2 carry **1 mark each**.
4. Questions 3-4 carry **2 marks each**.
5. Question 5 carries **3 marks**.
6. Question 6 carries **5 marks**.
7. Show all steps of your calculations clearly.
8. Use proper mathematical notation and terminology.

HOW TO SUBMIT:

1. Solve this question paper in your notebook or on loose sheets.
2. Clearly write your **Name, CBSE Roll Number, School Name, Place, and Date** on the first page.
3. Upload your solved paper at our website: **www.mathlove.in**
4. Check your **detailed report card on the website** after evaluation.

5. For any queries or assistance, WhatsApp us at **+91-7869553517**

SECTION A - 1 MARK QUESTIONS (2 × 1 = 2 Marks)

Q1. If A is a square matrix of order 3 and |A| = 5, then the value of |3A| is:
(A) 15 (B) 45 (C) 135 (D) 125 **[1]**

Q2. If A is a 3 × 3 matrix such that |adj A| = 64, then |A| equals:
(A) ±2 (B) ±4 (C) ±8 (D) ±16 **[1]**

SECTION B - 2 MARKS QUESTIONS (2 × 2 = 4 Marks)

Q3. Find the minors and cofactors of the elements a_{11} and a_{22} in the determinant:

$$\begin{vmatrix} 2 & -3 & 5 \\ 6 & 0 & 4 \\ 1 & 5 & -7 \end{vmatrix}$$ **[2]**

Q4. Using properties of determinants, prove that:

$$\begin{vmatrix} a & b & c \\ a^2 & b^2 & c^2 \\ bc & ca & ab \end{vmatrix} = (a - b)(b - c)(c - a)(ab + bc + ca)$$ **[2]**

SECTION C - 3 MARKS QUESTION (1 × 3 = 3 Marks)

Q5. Find the area of the triangle whose vertices are A(3, 8), B(-4, 2) and C(5, -1). Also, find the equation of the line joining the points A and B using determinants. **[3]**

SECTION D - 5 MARKS QUESTION (1 × 5 = 5 Marks)

Q6. A coaching institute offers three courses: Mathematics, Physics and Chemistry. The total fee for 2 students of Mathematics, 3 students of Physics and 4 students of Chemistry is ₹77,000. The total fee for 1 student of Mathematics, 2 students of Physics and 3 students of Chemistry is ₹48,000. The total fee for 3 students of Mathematics, 2 students of Physics and 2 students of Chemistry is ₹60,000.

Using matrix method, find the fee per student for each course. Also verify your answer. **[5]**

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