B K BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS

A CBSE DAY-CUM BOYS' RESIDENTIAL SCHOOL

PERIODIC TEST-1 (2026-27)

MATHEMATICS (041)

SET-01

Class : X | Duration :1Hrs.

Date : 15/06/26 | Max.Marks:25

Admission No.: | Roll No:

General Instructions:

- This question paper consists of 5 sections: A, B, C, D, and E.
- Section A contains 6 questions of 1 mark each. All questions are compulsory.
- Section B contains very short questions of 2 marks each.
- Section C contains short answer questions of 3 marks each.
- Section D contains long answer question of 5 marks.
- Section E contains a case-study-based question OF 4 marks
- Use of calculator is not permitted.
- Draw neat diagrams wherever required.
- Show all necessary steps for full marks.
- Read all questions carefully before attempting.

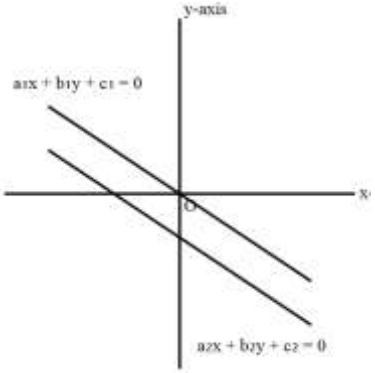
SECTION A

1. The pair of linear equations $x + 2y + 5 = 0$, $-3x - 6y + 1 = 0$ have **1**

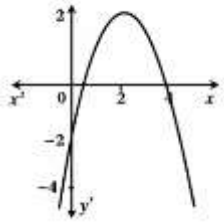
a. A unique solution
b. Exactly two solution
c. Infinite many solution
d. No solution

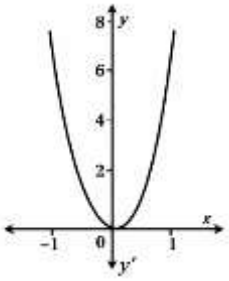
2. The lines representing the given pair of equation are non-intersecting. which of the following statement is not true **1**

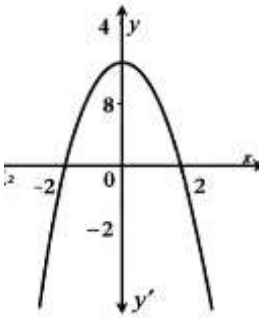
a. $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$
b. $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$
c. $\frac{a_1}{a_2} \neq \frac{b_1}{b_2} = \frac{c_1}{c_2}$
d. $\frac{a_1}{a_2} \neq \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$

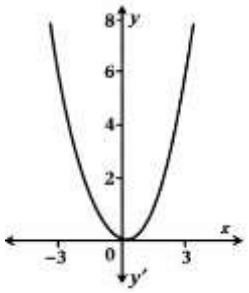


3. Aman solved a quadratic equation and found its root to be real. Which of these could represent the graph of equation aman solved.

i. 



ii. 



1

a. Only iii
b. Only iii and ii
c. only I and ii
d. only I , ii and iv

4. The Nature of roots of the equation $x^2 + x + 1$ are **1**
   a. Real roots
   b. Equal roots
   c. not real roots
   d. real and equal roots both

5. The Product of roots of the equation $x^2 - 6x + 2 = 0$ is **1**
   a. 2 b. -2 c. 6 d. -6

6. This is a **Assertion and Reason based question.** Two statements are given, one labelled as Assertion (A) and the other is labelled as Reason (R). Select the correct answer to these questions from the codes (A), (B), (C) and (D) as given below. **1**
   a. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A).
   b. Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
   c. Assertion (A) is true, but Reason (R) is false.
   d. Assertion (A) is false, but Reason (R) is true.

Assertion (A) : $x = 1$, $y = 1$ is a solution of pair of equation $4x - 3y = 1$; $5x - 7y = -2$.
Reason (R) : A pair of values (x, y) satisfying each one of equation in a given system of two simultaneous linear equation in x and y is called solution of system of equation .

SECTION – {B}

(This section comprises of very short answer type questions (VSA) of 2 mark each)

7 Given the linear equation $2x + 3y - 8 = 0$. Write another linear equations in two variables such that geometric representation of the pair so formed is **2**

i. Intersecting lines

ii. Consistent lines.

8 Find the nature of roots of the quadratic equation and if real find roots **2**

$$2x^2 - 3x + 5 = 0$$

SECTION – {C}

(This section comprises of short answer type questions (SA) of 3 mark each)

9 Out of a number of saras birds, one-fourth of the number are moving about in lotus plants, $^1/_9\, th$ coupled along with $^1/_4\, th$ as well as 7 times the square root of the number move on a hill. 56 birds remain in vakula trees. What is the total number of birds? **3**

10 Find the value of c for which the quadratic equation $(c+1)x^2 - 6(c+1)x + 3(c+9) = 0\ ; c \neq -1$, has equal roots. **3**

SECTION – {D}

(This section comprises of Log answer type questions (LA) of 5 mark each)

11. 2 women and 5 men can together finish an embroidery work in 4 days, while 3 women and 6 men can finish it in 3 days. Find the time taken by 1 woman alone to finish the work, and also that taken by 1 man alone **5**

SECTION – {E}

(This section comprises of CASE BASED questions (CBQ) of 4 mark)

12. It is common that governments revise travel fares based on purchasing power for different vehicles like autos, rickshaws, taxis, radio cabs, etc. The auto charges in a city comprise a fixed charge plus a charge for the distance covered. **4**

Study the following table:

Name of the city	Distance travelled (KM)	Amount paid ($in\ Rs.$)
Pune	10	75
	15	110
Delhi	8	91
	14	145

I. If the fixed charge is $Rs\ x$ and the running charge is $Rs\ y$ per km, form a pair of linear equations representing the situation. **(In Pune)**

II. If the fixed charge is $Rs\ x$ and the running charge is R$s\ y$ per km, form a pair of linear equations representing the situation. **(In Delhi)**

III. Find the amount to be paid for travelling 100 km in Pune.

IV. Find the amount to be paid for travelling 60 km in Delhi