

PART 1 - MATHEMATICS

Topic : Conic sections

SECTION-A : (Maximum Marks : 4)

This section contains **ONE** question.

Each question has **TWO** lists: **List-I** and **List-II**.

Four options are given representing matching of elements from List-I and List-II. **ONLY ONE** of these four options corresponds to a correct matching.

For each question, choose the option corresponding to the correct answer.

Answer to each question will be evaluated according to the following marking scheme :

Full Marks : +4 If **ONLY** the correct option is chosen;

Zero Marks : 0 If none of the options is chosen (i.e. the question is unanswered);

Negative Marks : -1 In all other cases.

1. Let the straight line  $y = 2x$  touch a circle with center  $(0, \alpha)$ ,  $\alpha > 0$ , and radius  $r$  at a point  $A_1$ . Let  $B_1$  be the point on the circle such that the line segment  $A_1B_1$  is a diameter of the circle. Let  $\alpha + r = 5 + \sqrt{5}$ .

Match each entry in **List-I** to the correct entry in **List-II**.

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| List-I |                 | List-II |            |
|--------|-----------------|---------|------------|
| P.     | $\alpha$ equals | 1.      | $(-2, 4)$  |
| Q.     | $r$ equals      | 2.      | $\sqrt{5}$ |
| R.     | $A_1$ equals    | 3.      | $(-2, 6)$  |
| S.     | $B_1$ equals    | 4.      | 5          |
|        |                 | 5.      | $(2, 4)$   |

(A)  $(P) \rightarrow (4) (Q) \rightarrow (2) (R) \rightarrow (1) (S) \rightarrow (3)$

(B)  $(P) \rightarrow (2) (Q) \rightarrow (4) (R) \rightarrow (1) (S) \rightarrow (3)$

(C)  $(P) \rightarrow (4) (Q) \rightarrow (2) (R) \rightarrow (5) (S) \rightarrow (3)$

(D)  $(P) \rightarrow (2) (Q) \rightarrow (4) (R) \rightarrow (3) (S) \rightarrow (5)$

Scan or tap for the full solution



Space for Rough Work

**JEE ADVANCED CONIC SECTIONS — CIRCLE:  
TANGENT, NORMAL AND CHORD OF CONTACT (JEE)  
— PYQS**

**Test Pattern : JEE (Advanced)**

## ANSWER KEY

## SECTION-A

[illegible]