

PART 1 - PHYSICS

Topic : Thermodynamics (physics)

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.

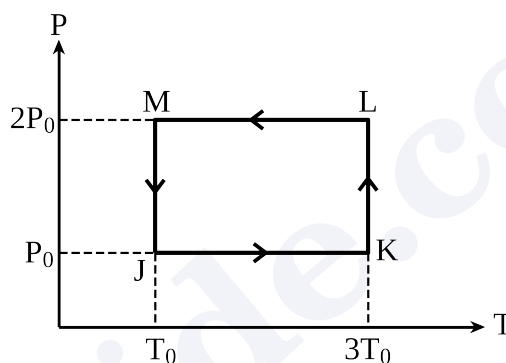
Answer to each question will be evaluated according to the following marking scheme :

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. One mole of a monatomic ideal gas undergoes the cyclic process $J \rightarrow K \rightarrow L \rightarrow M \rightarrow J$, as shown in the P-T diagram.



Match the quantities mentioned in **List-I** with their values in **List-II** and choose the correct option.

[R is the gas constant.]

[JEE Advanced 2024 Paper 1]

List-I		List-II	
P.	Work done in the complete cyclic process	1.	$RT_0 - 4RT_0 \ln 2$
Q.	Change in the internal energy of the gas in the process JK	2.	0
R.	Heat given to the gas in the process KL	3.	$3RT_0$
S.	Change in the internal energy of the gas in the process MJ	4.	$-2RT_0 \ln 2$
		5.	$-3RT_0 \ln 2$

(A) $P \rightarrow 1; Q \rightarrow 3; R \rightarrow 5; S \rightarrow 4$

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

(C) $P \rightarrow 4; Q \rightarrow 1; R \rightarrow 2; S \rightarrow 2$

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

Scan or tap for the full solution



Space for Rough Work

JEE ADVANCED THERMODYNAMICS (PHYSICS) —
CYCLIC PROCESSES AND P-V DIAGRAM — PYQS

Test Pattern : JEE (Advanced)

ANSWER KEY

SECTION-A																											
Ques.	1																										
Ans.	B																										