PART 1 - PHYSICS

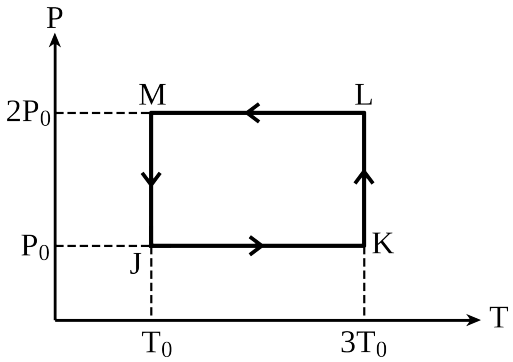
Topic : Thermodynamics (physics)

SECTION–1 : (Maximum Marks : 3)

- 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	: +3	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 ⟶ K ⟶ L ⟶ M ⟶ 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 → 1; Q → 3; R → 5; S → 4
(B) P → 4; Q → 3; R → 5; S → 2
(C) P → 4; Q → 1; R → 2; S → 2
(D) P → 2; Q → 5; R → 3; S → 4

Scan or tap for the full solution

Space for Rough Work

PYQSide

TEST SERIES
(Academic Session : 2026-2027)

JEE ADVANCED THERMODYNAMICS (PHYSICS) — CYCLIC PROCESSES AND P–V DIAGRAMS — PYQS

Test Pattern : **JEE (Advanced)**

ANSWER KEY

SECTION–1																														
Ques.	1																													
Ans.	**B**																													