

PART 1 - CHEMISTRY

Topic : Thermodynamics

SECTION-A : (Maximum Marks : 4)

- This section contains **ONE** question.
- Each question has **FOUR** options (A), (B), (C) and (D). **ONLY ONE** of these four options is the correct answer.
- 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. An ideal gas (0.5 mol), initially at 2 bar pressure, is compressed at a constant temperature of 600 K in two steps: first, against a constant external pressure of P bar ($2 < P < 8$), and then against constant external pressure of 8 bar. At each step, the compression is stopped only when the pressure of the gas becomes equal to the external pressure. The total work done on the gas in these steps is W . Considering all possible values of P ($2 < P < 8$) and taking the gas constant as R (in $\text{J K}^{-1} \text{mol}^{-1}$), the minimum value of $|W|$ (in J) is

[JEE Advanced 2026 Paper 1]

(A) 207R

(B) 600R

(C) 630R

(D) 900R

Scan or tap for the full solution



Space for Rough Work

JEE ADVANCED THERMODYNAMICS — IRREVERSIBLE
MULTISTEP COMPRESSION WORK — PYQS

Test Pattern : JEE (Advanced)

ANSWER KEY

SECTION-A																									
Ques.	1																								
Ans.	B																								