

NEET THERMODYNAMICS — FIRST LAW OF THERMODYNAMICS — PYQS

Max. Marks: 40

Questions: 10

Section A (MCQ) — 10 questions

- Q.1** At a certain temperature, $T(K)$, during a process, 500 J is absorbed by the system and work of 200 J is done by the system. Then change in internal energy of the system is : [NEET (UG) 2026]
- (1) 700 J (2) 400 J (3) 300 J (4) 500 J

 Scan or tap for the
full solution


- Q.2** For an endothermic reaction:
- A. q_p is negative. B. $\Delta_r H$ is positive.
 C. $\Delta_r H$ is negative. D. q_p is positive.
- Choose the correct answer from the options given below: [RE-NEET (UG) 2024]
- (1) B and D (2) C and D (3) A and B (4) A and C

 Scan or tap for the
full solution


- Q.3** For the following reaction at 300 K
- $$A_2(g) + 3B_2(g) \longrightarrow 2AB_3(g)$$
- the enthalpy change is +15 kJ, then the internal energy change is : [RE-NEET (UG) 2024]
- (1) 19988.4 J (2) 200 J
 (3) 1999 J (4) 1.9988 kJ

 Scan or tap for the
full solution


- Q.4** One mole of an ideal gas at 300 K is expanded isothermally from 1 L to 10 L volume. ΔU for this process is : (Use $R = 8.314 \text{ J K}^{-1} \text{ mol}^{-1}$) [NEET (UG) 2022 (Phase 2)]
- (1) 0 J (2) 1260 J (3) 2520 J (4) 5040 J

 Scan or tap for the
full solution


- Q.5** A gas is allowed to expand in a well insulated container against a constant external pressure of 2.5 atm from an initial volume of 2.50 L to a final volume of 4.50 L. The change in internal energy ΔU of the gas in joules will be [NEET 2017]
- (1) -500 J (2) -505 J (3) +505 J (4) 1136.25 J

 Scan or tap for the
full solution


- Q.6** Standard enthalpy of vaporisation $\Delta_{\text{vap}} H^\circ$ for water at 100°C is $40.66 \text{ kJ mol}^{-1}$. The internal energy of vaporisation of water at 100°C (in kJ mol^{-1}) is [AIPMT 2012 (Prelims)]
- (1) +37.56 (2) -43.76 (3) +43.76 (4) +40.66

 Scan or tap for the
full solution


- Q.7** Assume each reaction is carried out in an open container. For which reaction will $\Delta H = \Delta E$? [AIPMT 2006]
- (1) $2\text{CO}_{(g)} + \text{O}_{2(g)} \longrightarrow 2\text{CO}_{2(g)}$
 (2) $\text{H}_{2(g)} + \text{Br}_{2(g)} \longrightarrow 2\text{HBr}_{(g)}$
 (3) $\text{C}_{(s)} + 2\text{H}_2\text{O}_{(g)} \longrightarrow 2\text{H}_{2(g)} + \text{CO}_{2(g)}$
 (4) $\text{PCl}_{5(g)} \longrightarrow \text{PCl}_{3(g)} + \text{Cl}_{2(g)}$

 Scan or tap for the
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- Q.8** In a closed insulated container a liquid is stirred with a paddle to increase the temperature. Which of the following is true? [AIPMT 2002]
- (1) $\Delta E = W \neq 0, q = 0$ (2) $\Delta E = W = q \neq 0$
 (3) $\Delta E = 0, W = q \neq 0$ (4) $W = 0, \Delta E = q \neq 0$

 Scan or tap for the
full solution


- Q.9** When 1 mol of gas is heated at constant volume temperature is raised from 298 to 308 K. Heat supplied to the gas is 500 J. Then which statement is correct? [AIPMT 2001]
- (1) $q = w = 500 \text{ J}, \Delta E = 0$
 (2) $q = \Delta E = 500 \text{ J}, w = 0$
 (3) $q = -w = 500 \text{ J}, \Delta E = 0$
 (4) $\Delta E = 0, q = w = -500 \text{ J}$

 Scan or tap for the
full solution


- Q.10** For the reaction,
- $$\text{C}_2\text{H}_5\text{OH}(l) + 3\text{O}_2(g) \longrightarrow 2\text{CO}_2(g) + 3\text{H}_2\text{O}(l)$$
- which one is true [AIPMT 2000]
- (1) $\Delta H = \Delta E - RT$ (2) $\Delta H = \Delta E + RT$
 (3) $\Delta H = \Delta E + 2RT$ (4) $\Delta H = \Delta E - 2RT$

 Scan or tap for the
full solution


ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	
Ans.	3	1	1	1	2	1	2	1	2	1	