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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 J K^{-1} mol^{-1})

[NEET (UG) 2022 (Phase 2)]

(1) 0 J (2) 1260 J (3) 2520 J (4) 5040 J

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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 $\Delta_{vap}H°$ for water at 100°C is 40.66 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 ΔH = ΔE?

[AIPMT 2006]

(1) $2CO_{(g)} + O_{2(g)} \longrightarrow 2CO_{2(g)}$

(2) $H_{2(g)} + Br_{2(g)} \longrightarrow 2HBr_{(g)}$

(3) $C_{(s)} + 2H_2O_{(g)} \longrightarrow 2H_{2(g)} + CO_{2(g)}$

(4) $PCl_{5(g)} \longrightarrow PCl_{3(g)} + Cl_{2(g)}$

Scan or tap for the full solution

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) ΔE = W ≠ 0, q = 0 (2) ΔE = W = q ≠ 0

(3) ΔE = 0, W = q ≠ 0 (4) W = 0, ΔE = q ≠ 0

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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 J, ΔE = 0

(2) q = ΔE = 500 J, w = 0

(3) q = −w = 500 J, ΔE = 0

(4) ΔE = 0, q = w = −500 J

Scan or tap for the full solution

Q.10 For the reaction,

$C_2H_5OH(l) + 3O_2(g) \longrightarrow 2CO_2(g) + 3H_2O(l)$

which one is true [AIPMT 2000]

(1) ΔH = ΔE − RT (2) ΔH = ΔE + RT

(3) ΔH = ΔE + 2RT (4) ΔH = ΔE − 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**	