

PYQSide

NEET THERMODYNAMICS (PHYSICS) — FIRST LAW OF THERMODYNAMICS — PYQS

Max. Marks: 32

Questions: 8

Section A (MCQ)

- Q.1** An electric heater supplies heat to a system at a rate of 100 W. If the system performs work at a rate of 75 J/s, then the rate at which internal energy increases will be : [NEET (UG) 2026]

(1) 75 W (2) 25 W (3) 100 W (4) 125 W

Scan or tap for the full solution



- Q.2** Two gases A and B are filled at the same pressure in separate cylinders with movable pistons of radius r_A and r_B , respectively. On supplying an equal amount of heat to both the systems reversibly under constant pressure, the pistons of gas A and B are displaced by 16 cm and 9 cm, respectively. If the change in their internal energy is the same, then the ratio $\frac{r_A}{r_B}$ is equal to [NEET (UG) 2025]

(1) $\frac{2}{\sqrt{3}}$ (2) $\frac{\sqrt{3}}{2}$ (3) $\frac{4}{3}$ (4) $\frac{3}{4}$

Scan or tap for the full solution

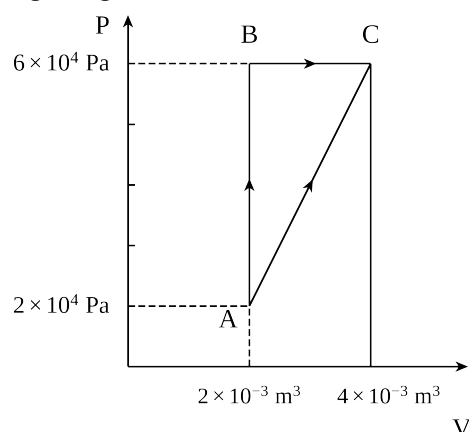


- Q.3** A sample of 0.1 g of water at 100°C and normal pressure ($1.013 \times 10^5 \text{ N m}^{-2}$) requires 54 cal of heat energy to convert to steam at 100°C. If the volume of the steam produced is 167.1 cc, the change in internal energy of the sample, is [NEET 2018]
- (1) 104.3 J (2) 208.7 J (3) 42.2 J (4) 84.5 J

Scan or tap for the full solution



- Q.4** Figure below shows two paths that may be taken by a gas to go from a state A to a state C.



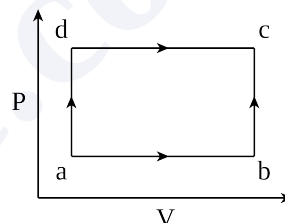
In process AB, 400 J of heat is added to the system and in process BC, 100 J of heat is added to the system. The heat absorbed by the system in the process AC will be [AIPMT 2015 (Cancelled)]

(1) 460 J (2) 300 J (3) 380 J (4) 500 J

Scan or tap for the full solution



- Q.5** A system is taken from state a to state c by two paths adc and abc as shown in the figure. The internal energy at a is $U_a = 10 \text{ J}$. Along the path adc the amount of heat absorbed $dQ_1 = 50 \text{ J}$ and the work obtained $dW_1 = 20 \text{ J}$ whereas along the path abc the heat absorbed $dQ_2 = 36 \text{ J}$. The amount of work along the path abc is [NEET 2013 (Karnataka)]



(1) 10 J (2) 12 J (3) 36 J (4) 6 J

Scan or tap for the full solution



- Q.6** During an isothermal expansion, a confined ideal gas does 150 J of work against its surroundings. This implies that [AIPMT 2011 (Prelims)]
- (1) 150 J of heat has been removed from the gas
 (2) 300 J of heat has been added to the gas
 (3) no heat is transferred because the process is isothermal
 (4) 150 J of heat has been added to the gas

Scan or tap for the full solution



- Q.7** If ΔU and ΔW represent the increase in internal energy and work done by the system respectively in a thermodynamical process, which of the following is true? [AIPMT 2010 (Prelims)]

(1) $\Delta U = -\Delta W$, in an adiabatic process
 (2) $\Delta U = \Delta W$, in an isothermal process
 (3) $\Delta U = \Delta W$, in an adiabatic process
 (4) $\Delta U = -\Delta W$, in an isothermal process

Scan or tap for the full solution



Q.8 The internal energy change in a system that has absorbed 2 kcal of heat and done 500 J of work is

[AIPMT 2009]

(1) 6400 J (2) 5400 J (3) 7900 J (4) 8900 J

Scan or tap for the
full solution



ANSWER KEY

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