



Class 11 Physics | Thermodynamics

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. A gas absorbs 500 J and does 200 J work. Change in internal energy is:

- A. -300 J B. -700 J C. 700 J D. 300 J

2. For an isochoric process, work done by a gas is:

- A. $P\Delta T$ B. nRT C. Equal to heat always D. Zero

3. An ideal gas undergoes isothermal expansion. Its internal-energy change is:

- A. Equal to pressure change
B. Zero
C. Positive
D. Negative

4. In an adiabatic process, which is zero?

- A. Heat exchanged
B. Work necessarily
C. Internal-energy change necessarily
D. Temperature change necessarily

5. During adiabatic expansion of an ideal gas, temperature:

- A. Decreases
B. Becomes zero
C. Is necessarily constant
D. Increases

6. Area under a pressure-volume curve represents:

- A. Temperature
B. Entropy
C. Work done by the gas
D. Heat capacity

7. A gas expands at 10^5 Pa by 0.002 m^3 . Work done is:

- A. 2000 J B. 50 J C. 0.02 J D. 200 J

8. In a complete thermodynamic cycle, net internal-energy change is:

- A. Always negative
B. Always positive
C. Equal to total heat absorbed only
D. Zero

9. Which is a state variable?

- A. Work done
B. Path length on a P-V graph
C. Heat supplied
D. Internal energy

10. An ideal gas at constant pressure doubles its absolute temperature. Volume:

- A. Doubles B. Quadruples
C. Halves D. Stays fixed

11. For an ideal gas, molar $C_p - C_v$ equals:

- A. $2R$ B. $R/2$ C. 0 D. R

12. For a monatomic ideal gas, C_v is:

- A. $7R/2$ B. $3R/2$ C. R D. $5R/2$

13. A reversible adiabatic ideal-gas process obeys:

- A. $P/V = \text{constant}$ B. $PT = \text{constant}$
C. $PV = \text{constant always}$ D. $PV^\gamma = \text{constant}$

14. Heat flows spontaneously between two bodies from:

- A. Higher heat capacity to lower heat capacity
B. Lower temperature to higher temperature
C. Higher mass to lower mass
D. Higher temperature to lower temperature

15. In isothermal compression of an ideal gas, heat is:

- A. Released by the gas
B. Absorbed by the gas
C. Converted entirely to increased internal energy
D. Always zero

ANSWER KEY — check after completing all 15 questions

1.D 2.D 3.B 4.A 5.A 6.C 7.D 8.D 9.D 10.A 11.D 12.B 13.D 14.D 15.A

Original exam-style practice • Reference notes: www.physics.guru/cbse-practice-papers/ • Not an official paper