



PHYSICS

CH: 12

THERMODYNAMICS

Name: _____

Date: _____

Class: XI Sec: A

1. What is meant by free expansion?
2. What is a cyclic process? What is the change in the internal energy of a system after it completes one cycle of such a process?
3. Out of the parameters: temperature, pressure, work and volume, which parameter does not characterise the thermodynamic state of matter?
4. Is internal energy of a gas a function of pressure? Comment.
5. Is it possible to increase the temperature of a gas without giving it heat?
6. The temperature of a gas rises during an adiabatic compression, although no heat is given to the gas from outside. Why?
7. A gas does work during adiabatic expansion. What is the source of mechanical energy so produced?
8. Name the thermodynamic variables defined by (i) Zeroth law (ii) first law of thermodynamics.
9. What is the specific heat of a gas in an isothermal process?
10. A liquid is being converted into steam at its boiling point. What will be the specific heat at this time?
11. State two limitations of first law of thermodynamics.
12. What is the significance of area under closed curve on a P V diagrams indicate?
13. On what factors, the efficiency of a Carnot engine depends?
14. Carnot engine cannot give 100% efficiency. Explain. Why?
15. How a refrigerator can be used as heat pump to heat a house in winter?
16. At 0°C and normal atmospheric pressure, the volume of 1g of water increases from 1cm^3 to 1.091cm^3 on freezing. What will be the change in its internal energy? Normal atmospheric pressure is $1.013 \times 10^5 \text{ Pa}$. Latent heat of ice = 80 cal g^{-1} .
17. Calculate the specific heat at constant volume for a gas. Given specific heat at constant pressure is $6.85 \text{ cal mol}^{-1} \text{ K}^{-1}$.
18. One mol of oxygen is heated at a constant pressure from 0°C . what must be the quantity of heat that should be supplied to the gas for the volume to be doubled? The specific heat of oxygen under these conditions is $0.218 \text{ cal mol}^{-1} \text{ K}^{-1}$.



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