

Objective Type Questions & Answers

Select the best answer for the following MCQs:

1) S.I. unit of heat energy is given by.

- (a) calorie (b) kilo calorie (c) Joule (d) Joule sec

2) The total sum of the energies of all the molecules (or atoms) in an object is known as.

- (a) potential energy (b) kinetic energy
(c) internal energy (d) elastic PE

3) S.I. unit of pressure of a gas is.

- (a) N m^{-2} (b) N-m (c) $\text{N}^2 \text{./m}$ (d) $\text{N}^2 \text{-m}$

4) A gas which strictly obeys gas laws under all conditions of temp and pressure is called.

- (a) real gas (b) ideal gas (c) perfect gas (d) inert gas

5) The ideal gas law is given in the form of.

- (a) $PV = \frac{nR}{T}$ (b) $PV = nRT$ (c) $PT = nRV$ (d) $TV = nRP$

6) The value of the universal gas constant R in S.I. units is.

- (a) $8.314 \text{ J mole}^{-1} \text{ K}^{-1}$ (b) $33.141 \text{ mole}^{-1} \text{ K}^{-1}$

(c) $8314 \text{ J mole}^{-1} \text{ K}^{-1}$

(d) $831.4 \text{ J mole}^{-1} \text{ K}^{-1}$

7) The Boltzmann constant k in terms of universal gas constant R and Avogadro No. N_A is given

(a) $k = N_A R$

(b) $k = \frac{R}{N_A}$

(c) $k = \frac{N_A}{R}$

(d) $k = n R N_A$

8) The expression for the pressure exerted by an ideal gas is given by.

(a) $\frac{1}{3} N_0 < \frac{1}{2} m v^2 >$

(b) $\frac{2}{3} N_0 < \frac{1}{2} m v^2 >$

(c) $\frac{1}{2} N_0 < \frac{1}{2} m v^2 >$

(d) $\frac{2}{3} N_A < \frac{1}{2} m v^2 >$

9) The average translational KE per molecule of an ideal gas in terms of pressure is given by.

(a) $\frac{3P}{2N_0}$

(b) $\frac{2P}{3N_0}$

(c) $\frac{3N_0}{2P}$

(d) $\frac{2N_0}{3P}$

10) If the pressure is increased, the boiling point of the liquid.

(a) decreases

(b) increases

(c) remains constant

(d) none of these

11) Under the same condition of temperature and pressure, equal volume of all the gases contains the same No. of kilo molecules. It is the statement of.

(a) Charles' Law

(b) Boyles' Law

(c) Avogadro's Law

(d) Law of pressure

12) At constant temperature, the graph between V and $1/P$ is a.

(a) parabola (b) hyperbola (c) straight line (d) ellipse

13) At constant pressure the graph between V and T (absolute temperature) is.

(a) ellipse (b) parabola (c) hyperbola (d) straight line

14) For a gas obeying Boyle's law, if the pressure is doubled, the volume becomes

(a) one half (b) double (c) remains constant (d) three times

15) 4180 Joules of work raises the temperature of 1 litre water through.

(a) 1 °F (b) 1 °C (c) 273 K (d) none of these

16) The first law of thermodynamics can be expressed as.

(a) $Q = \Delta U - W$ (b) $Q = \Delta U + W$ (c) $\Delta U = Q + W$ (d) $W = Q + \Delta U$

17) In adiabatic process,

(a) $Q = \Delta U + W$ (b) $Q = \Delta U$ (c) $Q = W$ (d) $Q = 0$

18) Which is the process in which the temperature remains constant,

(a) adiabatic process (b) isobaric process
(c) isothermal process (d) isochoric process

25) Entropy is a measure of.

- (a) internal energy of the system (b) order of the system
(c) disorder of the system (d) P.E. of the system

26) Temperature of -273°C will be on Kelvin scale as

- (a) 273 K (b) 373 K (c) -273 K (d) 0 K

27) The difference of the molar specific heats of a gas C_p and C_v is equal to.

- (a) $\frac{C_p}{C_v} = R$ (b) $C_p + C_v = R$ (c) $C_p - C_v = R$ (d) $\frac{C_v}{C_p} = R$

28) No entropy change takes place in a,

- (a) isobaric process (b) isothermal process
(c) adiabatic process (d) isochoric process

29) In reversible process, the entropy,

- (a) decreases (b) increases (c) remains constant (d) none of these

