

CHAPTER-1**Thermodynamics****1. Basic Concepts of Thermodynamics**

1. According to which law, all perfect gases change in volume by $1/273^{\text{rd}}$ of their original volume at 0° for every 1°C change in temperature when pressure remains constant?
 (a) Joule's law
 (b) Boyle's law
 (c) Gay – Lussac law
 (d) Charle's law [SSC-JE:2007]
2. The efficiency of a Carnot engine depends on-
 (a) Working substance
 (b) Design of engine
 (c) Type of fuel fired
 (d) Temperatures of source and sink [SSC-JE:2007]
3. Zeroth law of thermodynamic defines:
 (a) Internal energy
 (b) Enthalpy
 (c) Temperature
 (d) Pressure [SSC-JE:2008]
4. The term NTP stands for
 (a) Nominal temperature and pressure
 (b) Natural temperature and pressure
 (c) Normal temperature and pressure
 (d) Normal thermodynamic practice [SSC-JE:2010]
5. Mixture of ice and water from a
 (a) Closed system
 (b) Open system
 (c) Isolated system
 (d) Heterogeneous system [SSC-JE:2010]
6. When neither mass nor energy is allowed to cross the boundary of a system, it is then called:
 (a) Open system
 (b) Isolated system
 (c) Universe
 (d) Closed system [SSC-JE:2010]
7. The molecular kinetic energy of a gas is proportional to :
 (a) $T^{1/2}$
 (b) $T^{3/2}$
 (c) T^2
 (d) T [SSC-JE:2012]
8. In case of boyle's law. If pressure increases by 1% the percentage decrease in volume is :
 (a) $\frac{1}{101}\%$
 (b) $\frac{100}{101}\%$
 (c) $\frac{1}{100}\%$
 (d) 0% [SSC-JE:2012]
9. Which property is an intensive property of the system-
 (a) Specific enthalpy
 (b) Volume
 (c) Kinetic energy
 (d) Entropy [SSC-JE:2013]
10. One of the extensive properties of a thermodynamic system amongst the following is-
 (a) Pressure
 (b) Volume
 (c) Temperature
 (d) Density [SSC-JE:2013]
11. If two liquids at different temperature are mixed then the final temperature of the mixture of liquids can be obtained by using-
 (a) Zeroth law of thermodynamic
 (b) First law of thermodynamic
 (c) Second law of thermodynamic
 (d) Third law of thermodynamic [SSC-JE:2013]
12. A gas in a container A is in thermal equilibrium with another gas of the same mass in container B. if the corresponding pressures and volumes are denoted by suffixes A and B. then which of the following statements is true?
 (a) $P_A \neq P_B, V_A = V_B$
 (b) $P_A = P_B, V_A \neq V_B$
 (c) $P_A V_A = P_B V_B$
 (d) $\frac{P_A}{V_B} = \frac{P_B}{V_A}$ [SSC-JE:2014]