_____

Choose the correct option for the following questions. $1 \times 15 = 15$

1. The type of expansion a gas can have is –
   a. Superficial and volume expansion   b. linear and volume expansion
   c. only volume expansion   d. none
   Ans: c. only volume expansion

2. For thermal expansion of gas, we generally ignore the expansion of gas container, because –
   a. γ of container is much greater than that of the gas contained
   b. γ of gas contained is much greater than that of the container
   c. γ of gas contained is equal to that of the container
   d. Gas molecules do not exert any force on each other.
   Ans: b. γ of gas contained is much greater than that of the container

3. For all ideal gasses at constant pressure –
   a. γ is different for different gas   b. γ depends on the nature of gas container
   c. γ is same for all the gas   d. γ is a fraction greater than one.
   Ans: c. γ is same for all the gas

4. For all ideal gasses at constant pressure -
   a. $\gamma = 273$ b. $\gamma = 0$ c. $\gamma = -273$ d. $\gamma = \frac{1}{273}$
   Ans: d. $\gamma = \frac{1}{273}$

5. The SI unit of coefficient of volume expansion of gas is -
   a. $/°C$ b. $/K$ c. $°C$ d. K
   Ans: b. $/K$

6. The C.G.S unit of coefficient of volume expansion of gas is -
   a. $/°C$ b. $/K$ c. $°C$ d. K
   Ans: a. $/°C$

7. The volume expansion coefficient of gas –
   a. Is $\frac{1}{273}$ for ideal gas at constant pressure.
   b. could be more or less than $\frac{1}{273}$ if pressure is varied
   c. may not be $\frac{1}{273}$ at constant pressure if the gas is not an ideal one.
   d. All of the above.
   Ans: d. All of the above.

8. Change of volume of gas depends on –
   a. Initial volume
   b. Change of temperature
   c. Pressure on the gas
   d. All of the above
   Ans: d. All of the above

9. The volume expansion coefficient of ideal gas at constant pressure, depends on –
   a. Nature of gas
   b. Change of temperature
   c. Initial volume
   d. None of the above
   Ans: d. None of the above

10. Two different ideal gasses of volume $v \; and \; 2v$ are mixed at constant pressure. Volume expansion coefficient of the mixture –
    a. Will remain same to $\dfrac{1}{273}$
    b. Will be $\dfrac{1}{91}$
    c. Depends on the nature of the gasses
    d. None of these
    Ans: Will remain same to $\dfrac{1}{273}$

11. The relation $\alpha : \beta : \gamma = 1 : 2 : 3$, is valid in case of –
    a. only Solid
    b. only Liquid
    c. only Gas
    d. solid, liquid and gas all.
    Ans: a. only Solid

12. $1cc$ ideal gas is heated (keeping pressure constant), such that the temperature increases from $0°C$ to $1°C$. The increase in volume will be –
    a. 1cc
    b. 273 cc
    c. $\dfrac{1}{273} \; cc$
    d. None of these
    Ans: c. $\dfrac{1}{273} \; cc$

13. γ of any ideal gas at constant pressure is same, because –
    a. Ideally the gas molecules do not exert any force on each other
    b. Gas molecules are mass less
    c. Kinetic energy of gas molecules increase when temperature is increased
    d. All of these
    Ans: a. Ideally the gas molecules do not exert any force on each other

14. At constant pressure, certain amount of ideal gas is heated from 0°C. At what temperature the increase in volume will be equal to the initial volume?
    a. 273 K
    b. 0 K
    c. $\frac{1}{273}$ °C
    d. 273 °C
    Ans: d. 273 °C

15. 32g of O_2 gas is taken at STP and then heated to 273°C (keeping pressure constant). What will be the volume of the gas at that temperature?
    a. 22.4 lit
    b. $\frac{22.4}{273}$ lit
    c. 44.8 *lit*
    d. None of these
    Ans: c. 44.8 *lit*

Name of the teacher – Soumitra Maity