MORE QUESTIONS SOLVED

I. Very Short Answer Type Questions

Question 1. What is the value of the gas constant in SI units?
Answer: 8.314 JK^{-1} mol^{-1}.

Question 2. Define boiling point of a liquid.
Answer: The temperature at which the vapour pressure of a liquid is equal to external pressure is called boiling point of liquid.

Question 3. What is SI unit of (i) Viscosity (ii) Surface tension?
Answer:
(i) Unit of viscosity is Nsm^{-2}
(ii) Unit of surface tension is Nm^{-1}

Question 4. What is the effect of temperature on (i) surface tension and (ii) Viscosity?
Answer:
(i) Surface tension decreases with increase of temperature.
(ii) Viscosity decreases with increase of temperature.

Question 5. What is the unit of coefficient of viscosity?
Ans. Poise.

Question 6. What do you understand by laminar flow of a liquid?
Answer: The type of flow in which there is regular gradation of velocity in passing from one layer to the next is called laminar flow.

Question 7. What do you mean by compressibility factor?
Answer: The deviation from ideal behaviour can be measured in terms of compressibility factor Z.
$Z = PV/nRT$

Question 8. What is Boyle Temperature?
Answer: The temperature at which a real gas obeys ideal gas law over an appreciable range of pressure, is called Boyle temperature or Boyle point.

Question 9. What is meant by elastic collision ?
Answer: Collision in which there is no loss of kinetic energy but there is transfer of energy, is called elastic collision.

Question 10. Define critical temperature of gas.
Answer: The temperature above which a gas cannot be liquefied.

Question 11. What are real gases ?
Answer: A gas which can deviate from ideal gas behaviour at higher pressure and lower temperature, is called a real gas.

Question 12. Define an ideal gas.
Answer: A gas that follows Boyle's law, Charles' law and Avogadro law strictly, is called an ideal gas.

Question 13. Name four properties of gases.
Answer:

- Gases, have no definite shape and no definite volume.

- There is no force of attraction existing between the molecules of gases.
- Gases are highly compressible.
- Gases'can mix evenly and can spread in whole space.

Question 14. State Dalton's law of partial pressure.
Answer: Daltons' Law states that, total pressure exerted by the mixture of non-reactive gases is equal to the sum of the partial pressures of individual gases.

Question 15. What do you mean by aqueous tension?
Answer: Pressure exerted by saturated water vapour is called aqueous tension.

Question 16. Give mathematical expression for ideal gas equation.
Answer: PV = nRT
Where R is called Gas constant.

Question 17. Write van der Waals equation for n moles of a gas.
Answer:

$$\left[P + \frac{an^2}{V^2}\right](V - nb) = nRT$$

Where 'a' and 'V are van der waals constants.

Question 18. How is compressibility factor expressed in terms of molar volume of the real gas and that of the ideal gas?
Answer:

$$Z = \frac{V_{real}}{V_{ideal}}$$

Question 19. Why liquids diffuse slowly as compared to gases?
Answer: In liquids, the molecules are more compact in comparison to gases.

Question 20. What is the effect of temperatures on the vapour pressure of a liquid?
Answer: Vapour pressure increases with rise in temperature.

Question 21. Why falling liquid drops are spherical?
Answer: Because of the property of surface tension, liquid tends to minimise its area.

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