

DPP

DAILY PRACTICE PROBLEMS

CLASS : XIth

DATE :

SUBJECT : CHEMISTRY

DPP No. : 2

Topic :- STATES OF MATTER

- A spherical balloon of 21 cm diameter is to be filled with hydrogen at STP from a cylinder containing the gas at 20 atm and 27°C. If the cylinder can hold 2.82 L of water, the number of balloons that can be filled up is
a) 5 b) 2 c) 10 d) 12
- O₂ is collected over water at 20°C. The pressure inside shown by the gas is 740 mm of Hg. What is the pressure due to O₂ alone if vapour pressure of H₂O is 18 mm at 20°C ?
a) 722 mm b) 740 mm c) 758 mm d) None of these
- A pure crystalline substance, on being heated gradually, first forms a turbid looking liquid and then the turbidity completely disappears. This behavior is the characteristic of substances forming
a) isomeric crystals b) liquid crystals c) isomorphous crystals d) allotropic crystals
- If pressure of a gas contained in a closed vessel is increased by 0.4% when heated by 1°C its initial temperature must be:
a) 250 K b) 250°C c) 2500 K d) 25°C
- A solid has a structure in which 'W' atoms are located at the corners of a cubic lattice 'O' atoms at the centre of edges and Na atoms at the centre of the cube. The formula for the compound is
a) Na₂WO₃ b) Na₂WO₂ c) NaWO₂ d) NaWO₃
- 10 g each of CH₄ and O₂ are kept in cylinders of same volume under same temperatures, give the pressure ratio of two gases
a) 2 : 1 b) 1 : 4 c) 2 : 3 d) 3 : 4
- A sample of gas is at 0°C. The temperature at which its rms speed of the molecules will be doubled is:
a) 103°C b) 273°C c) 723°C d) 819°C
- If the concentration of water vapour in the air is 1% and the total atmospheric pressure equals 1 atm then the partial pressure of water vapour is:
a) 0.1 atm b) 1 mm Hg c) 7.6 mm Hg d) 100 atm
- 0.5 mole of each of H₂, SO₂ and CH₄ are kept in a container. A hole was made in the container. After 3 h, the order of partial pressures in the container will be
a) pSO₂ > pH₂ > pCH₄ b) pSO₂ > pCH₄ > pH₂ c) pH₂ > pSO₂ > pCH₄ d) pH₂ > pCH₄ > pSO₂
- 22 g solid CO₂ or dry ice is enclosed in a bottle of one litre properly closed. If temperature of bottle is raised to 25°C to evaporate all the CO₂, the pressure in bottle is:
a) 13.23 atm b) 12.23 atm c) 11.23 atm d) 14.23 atm

11. Gases deviate from ideal gas behaviour at high pressure. Which of the following is correct for non ideality?
 - a) At high pressure, the collision between the gas molecules becomes enormous
 - b) At high pressure, the gas molecules move only in one direction
 - c) At high pressure, the volume of gas becomes insignificant
 - d) At high pressure, the intermolecular interaction become significant

12. CsBr crystal has bcc structure. It has an edge length of 4.3 Å. The shortest interionic distance between Cs⁺ and Br⁻ ions is
 - a) 1.86 Å
 - b) 2.86 Å
 - c) 3.72 Å
 - d) 4.72 Å

13. Two gases A and B having the same volume diffuse through a porous partition in 20 and 10 seconds respectively. The molecular mass of A is 49 u. Molecular mass of B will be:
 - a) 25.00 u
 - b) 50.00 u
 - c) 12.25 u
 - d) 6.50 u

14. In the van der Waals' equation, the constant 'a' and 'b' with temperature shows which trend:
 - a) Both remains same
 - b) 'a' remains same, b varies
 - c) 'a' varies, b remains same
 - d) Both varies

15. Frenkel defect is found in crystals in which the radius ration is
 - a) 1.5
 - b) 1.7
 - c) Very low
 - d) Slightly less than unity

16. Graham's law deals with the relation between
 - a) Pressure and volume
 - b) Density and rate of diffusion
 - c) Rate of diffusion and volume
 - d) Rate of diffusion and viscosity

17. The density of a gas A is twice that of a gas B at the same temperature. The molecular weight of gas B is thrice that of A. The ratio of the pressures acting on A and B will be
 - a) $\frac{1}{6}$
 - b) $\frac{7}{8}$
 - c) $\frac{2}{5}$
 - d) $\frac{1}{4}$

18. The CO₂ gas does not follow gaseous laws at all ranges of pressure and temperature because
 - a) It is triatomic gas
 - b) Its internal energy is quite high
 - c) There is attraction between its molecules
 - d) It solidify at low temperature

19. Based on kinetic theory of gases following laws can be proved
 - a) Boyle's law
 - b) Charles' law
 - c) Avogadro's law
 - d) All of these

20. The quantity $pV/(k_B T)$ represents the
 - a) Number of molecules in the gas
 - b) Mass of the gas
 - c) Number of moles of the gas
 - d) Translation energy of the gas