DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : CHEMISTRY**
DATE : **DPP No. : 3**

Topic :- STATES OF MATTER

1. Hydrogen diffuses six times faster than gas A. The molar mass of gas A is
   a) 72 b) 6 c) 24 d) 36

2. A certain mass of gas occupies a volume of 300 cc at 27°C and 620 mm pressure. The volume of this gas at 47°C and 640 mm pressure will be
   a) 400 cc b) 510 cc c) 310 cc d) 350 cc

3. A closed vessel contains equal number of oxygen and hydrogen molecules at a total pressure of 740 mm. If oxygen is removed from the system, the pressure:
   a) Becomes half of 740 mm
   b) Remains unchanged
   c) Becomes 1/9th of 740 mm
   d) Becomes double of 740 mm

4. 2 g of hydrogen diffuses from a container in 10 minute. How many gram of oxygen would diffused through the same container in the same time under similar conditions?
   a) 5 g b) 4 g c) 6 g d) 8 g

5. The critical temperature of a gas is that temperature:
   a) Above which it can no longer remain in the gaseous state
   b) Above which it cannot be liquefied by pressure
   c) At which it solidifies
   d) At which volume of gas becomes zero

6. A preweighted vessel was filled with CO_2 at STP and weighed. It was then evaluated, filled with SO_2 at the same temperature and pressure and again weighted. The weight of the CO_2 will be
   a) The same as that of the SO_2 b) Twice of that of the SO_2
   c) Half that of the SO_2 d) Two third of that of SO_2

7. The term that corrects for the attractive forces present in a real gas in the van der Waals' equation is
   a) nb b) $n^2\ a/V^2$ c) $-(n^2a/V^2)$ d) $-nb$

8. 1.0 L of N_2 and 7/8 L of O_2 at the same temperature and pressure were mixed together. What is the relation between the masses of the two gases in the mixture?
   a) $M_{N_2} = 3M_{O_2}$ b) $M_{N_2} = 8M_{O_2}$ c) $M_{N_2} = M_{O_2}$ d) $M_{N_2} = 16M_{O_2}$

9. A gas will approach ideal behaviour at
   a) Low temperature and high pressure b) Low temperature and low pressure
   c) High temperature and low pressure d) High temperature and high pressure

10. Which gas may be collected over water?
    a) NH_3 b) N_2 c) HCl d) SO_2

11. The relationship between coefficient of viscosity of a liquid and temperature can be expressed as
a) $\eta = Ae^{ERT}$ b) $\eta = Ae^{E/RT}$ c) $\eta = ET/R$ d) $\eta = Ae^{RT/E}$

12. All the three states H_2O, *i. e.*, the triple point for H_2O the equilibrium,
Ice ⇌ Water ⇌ Vapour exist at:
a) 3.85 mm and 0.0981°C
b) 4.58 mm and 0.0098°C
c) 760 mm and 0°C
d) None of the above

13. Which is a postulate of kinetic theory of gases?
a) Gases combine in simple ratio
b) There is an attraction between gaseous molecules
c) There is no influence of gravity on gas molecules
d) Atom is indivisible

14. If a vessel containing hydrogen chloride at a pressure p is connected with another vessel of the same volume containing ammonia at a pressure p and the connecting tube opened so that they can mix and form a white solid then the gas pressure
a) Is equal to the pressure p b) Will be $p/p = 1$
c) Will be doubled, *ie*, $2p$ d) Drops to zero

15. The Joule-Thomson coefficient for a gas is zero at:
a) Inversion temperature
b) Critical temperature
c) Absolute temperature
d) Below 0°C

16. Consider an ideal gas contained in a vessel. If the intermolecular interactions suddenly begins to acts, which of the following will happen?
a) The pressure decrease b) The pressure increase
c) The pressure remains unchanged d) The gas collapses

17. 5 g each of the following gases at 87°C and 750 mm pressure are taken. Which of them will have the least volume?
a) HF b) HCl c) HBr d) HI

18. A thin balloon filled with air at 47°C has a volume of 3.0 litre. If on placing it in a cooled room, its volume becomes 2.7 litre, the temperature of room is:
a) 42°C b) 30°C c) 15°C d) 0°C

19. The temperature at which nitrogen under 1.00 atm pressure has the same root mean square as that of carbon dioxide at STP, is
a) 0°C b) 27°C c) −99°C d) −200°C

20. At what temperature will hydrogen molecules have the same kinetic energy as nitrogen molecules have at 35°C ?

a) $\frac{28 \times 35}{2}$°C b) $\frac{2 \times 35}{28}$°C c) $\frac{2 \times 28}{35}$°C d) 35°C