JEE Main 2025
Chemistry
Live Quiz
Practice Test - 12

1. At constant volume, for a fixed number of moles of a gas, the pressure of the gas increases with rise to temperature due to : **[30 sec]**

(A) Increase in average molecular speed
(B) Increased rate of collisions amongst molecules
(C) Increase in molecular attraction
(D) Decrease in mean free path

2. When the temperature is increased, surface tension of water : **[30 sec]**

(A) increases **(B)** decreases
(C) remains constant **(D)** shows irregular behaviour

3. The ratio of the rate of diffusion of helium and methane under identical condition of pressure and temperature will be : **[30 sec]**

(A) 4 **(B)** 2 **(C)** 1 **(D)** 0.5

4. Which of the following is equal to 1 atmospheric pressure ? **[30 sec]**

(A) 10^5 Pa **(B)** 1.013 bar **(C)** 76 cm of Hg **(D)** All of these

5. Equal weights of methane and oxygen are mixed in an empty container at 25°C. The fraction of the total pressure exerted by oxygen is : **[45 sec]**

(A) $\frac{1}{3}$ **(B)** $\frac{1}{2}$ **(C)** $\frac{2}{3}$ **(D)** $\frac{1}{3} \times \frac{273}{298}$

6. The density of neon will be highest at : **[45 sec]**

(A) S.T.P. **(B)** 0°C, 2 atm **(C)** 273°C, 1 atm **(D)** 273°C, 2 atm

7. 10 mL of gaseous hydrocarbon is exploded with 33 mL of oxygen. After cooling the volume of the residual gas was 28 mL and on the treatment with KOH the volume decreased to 8 mL. Find the volume of CO_2 in the residual gas is in mL. **[45 sec]**

(A) 28 mL **(B)** 20 mL **(C)** 43 mL **(D)** 36 mL

8. The density of $O_2(g)$ is maximum at : **[45 sec]**

(A) STP **(B)** 273 K and 2 atm
(C) 546 K and 1 atm **(D)** 546 K and 2 atm

9. 10 mL of gaseous hydrocarbon on combustion gives 40 mL of $CO_2(g)$ and 50 mL of $H_2O(vap)$. The hydrocarbon is : **[45 sec]**

(A) C_4H_5 **(B)** C_8H_{10} **(C)** C_4H_8 **(D)** C_4H_{10}

10. One mole of nitrogen gas at 0.8 atm takes 38 second to diffuse through a pin hole whereas one mole of an unknown compound of xenon with fluorine at 1.6 atm takes 57 second to diffuse through the same hole. The molecular formula of the compound is : (Molar mass of Xe = 131, F = 19) **[120 sec]**

(A) XeF_6 **(B)** XeF_4 **(C)** XeF_2 **(D)** XeF_8

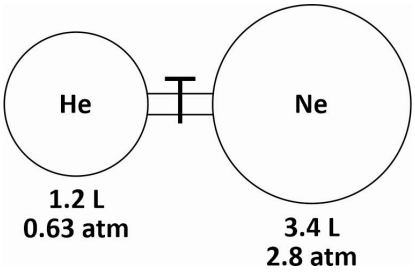
11. The intercept on y-axis and slope of curve plotted between P/T vs T. (For an ideal gas having 10 moles in a closed rigid container of volume 8.21 L. (P = Pressure in atm and T = Temperature in K, $\log_{10} 2 = 0.30$) are respectively : **[120 sec]**

(A) 0.01, 0 **(B)** 0.1, 0 **(C)** 0.1, 1 **(D)** 10, 1

12. A He atom at 300 K is released from the surface of the earth to travels upwards. Assuming that it undergoes no collision with other molecules, how high it be before coming to the rest ? **[120 sec]**

(A) 9.53 m **(B)** 95.3 m **(C)** 953 m **(D)** 9.53×10^4 m

13. Consider the following apparatus. Calculate the partial pressure of helium after the opening value. The temperature remains constant at 16°C. **[120 sec]**



(A) 0.164 atm **(B)** 1.64 atm **(C)** 0.328 atm **(D)** 1 atm

14. Oxygen gas generated by the decomposition of potassium chlorate is collected over water. The volume of oxygen gas collected at 24°C and atmosphere of 760 mmHg is 128 mL. Calculate the mass gas obtained. The pressure of the water vapour at 24°C is 22.4 mm Hg. **[120 sec]**

(A) 1.36 g **(B)** 1.52 g **(C)** 0.163 g **(D)** 1.63 g

15. 5 mL of a gaseous hydrocarbon was exposed to 30 mL of O_2. The resultant gas, on cooling is found to measure 25 mL of which 10 mL was absorbed by NaOH and the reminder by pyrogallol. All measurements are made at constant pressure and temperature. The sum of number of carbon and hydrogen atom in the hydrocarbon is : **[120 sec]**

(A) 5 **(B)** 2 **(C)** 10 **(D)** 6

Answer

1	**2**	**3**	**4**	**5**
A	B	B	D	A
6	**7**	**8**	**9**	**10**
B	B	B	D	A
11	**12**	**13**	**14**	**15**
B	D	A	C	D