

<b>MCQ Test JEE/NEET</b> <b>Chapter-Gaseous State</b>		Level 2
Under identical experimental conditions, which one of the following pairs of gases will be most easy to separate by diffusion process?		
a) O <sub>2</sub> , N <sub>2</sub>	b) O <sub>2</sub> , F <sub>2</sub>	
c) H <sub>2</sub> , D <sub>2</sub>	d) <sup>235</sup> U <sub>6</sub> , <sup>238</sup> UF <sub>6</sub>	
1. A bottle of dry ammonia and a bottle of dry hydrogen chloride connected through a long tube are opened simultaneously at both ends the white ammonia chloride ring first formed will be		
a) At the centre of the tube	b) Near the hydrogen Chloride bottle	
c) Near the ammonia bottle	d) Throughout the length of the tube	
2. The density of neon will be highest at		
a) STP	b) 0°C, 2 atm	
c) 273°C, 1 atm	d) 273°C, 1 atm	
3. At the same temperature and pressure, which of the following gases will have the highest kinetic energy?		
a) H <sub>2</sub>	b) O <sub>2</sub>	
c) CH <sub>4</sub>	d) All will have the equal value	
4. At constant volume, fixed number of a gas the pressure of the gas increases with rise of temperature due to		
a) Increases in average molecular speed	b) Increased rate of diffusion amongst molecules	
c) Increases in molecular attraction	d) Decrease in mean free path	
5. Temperature below which the gas does not obey ideal gas law is		
a) Critical temperature	b) Inversion temperature	
c) Boyle temperature	d) Reduced temperature	
6. The vapour pressure of water at 300 K in a closed container is 4.0 atm. If the volume of the container is doubled, is vapour pressure at 300 K will be		
a) 0.8 atm	b) 0.8 atm	
c) 0.4 atm	d) 0.6 atm	
7. X ml of H <sub>2</sub> gas effuses through a hole in a container in 5 seconds. The time taken for the effusion of the same volume of the gas specified below under identical condition is		
a) 10 seconds: He	b) 20 seconds: O <sub>2</sub>	
c) 25 seconds: CO	d) 55 seconds: CO <sub>2</sub>	
8. The density of air is 0.00130 g/ml. The vapour density of air will be		
a) 0.00065	b) 0.65	
c) 14.4816	d) 14.56	
9. Gas equation PV=nRT is obeyed by		
a) Only isothermal process	b) Only adiabatic process	
c) Both a and b	d) None of these	
10. The compressibility factor of a gas less than unity at STP. Therefore		
V <sub>m</sub> = 22.4 litres	V <sub>m</sub> < 22.4 litres	
V <sub>m</sub> > 22.4 litres	V <sub>m</sub> = 44.8 litres	
11. If the four tubes of a car are filled to the same pressure with N <sub>2</sub> O <sub>2</sub> H <sub>2</sub> and Ne separately, then which one will be filled first.		
a) N <sub>2</sub>	b) O <sub>2</sub>	
c) H <sub>2</sub>	d) Ne	
12. Which one of the following statements is not true about the effect of an increase in temperature		

	on the distribution of molecular speed in a gas?	
	a) The most probable speed increases	b) The fraction of the molecules with most probable speed increases
	c) The distribution becomes broader	d) The area under the distribution curve remains the same as under the lower temperature
13.	Equations for Boyle's is	
	a) $dp/p = -dv/V$	b) $dp/p = +dv/V$
	c) $d^2p/p = -dV/dT$	d) $d^2p/p = +dV/dT$
14.	Boyle's may be represented as :	
	a) $(dp/dv)_T = K/V$	b) $(dp/dv)_T = -K/V$
	c) $(dp/dv)_T = -K/V^2$	d) $(dp/dv)_T = K/V^2$
15.	A sample of Ne is originally 10% by mole in $Ne^{20}$ isotope and remaining are $Ne^{22}$ isotope. In how many steps of effusion, 25% enrichment of Ne can be achieved.	
	a) n=22	b) n=48
	c) n=48	d) n=24
16.	Ammonia gas at 76 cm Hg pressure was connected to a manometer. After sparking in the flask, ammonia is partially dissociated as follows.	
	a) 27 cm	b) 50 cm
	c) 54 cm	d) 30 cm
17.	Using Vander waal's equations of state, calculate the pressure correction factor for two moles of a gas confined in a four litre flask exerts a pressure of 11 atm at 300 K, $b=0.05L\ mol^{-1}$	
	a) 1.78	b) 2.24
	c) 1.61	d) 3.2
18.	If for two gases of molecular weights $M_A$ and $M_B$ at temperature $T_A$ and $T_B$ , $T_A M_B = T_B M_A$ , then which proper has the same magnitude for both gases.	
	a) Density	b) Pressure
	c) KE per mole	d) $V_{rms}$
19.	The van der Waals constant 'b' for oxygen is $0.0318\ L\ mol^{-1}$ . Calculate the diameter of the Oxygen molecule.	
	a) $2.932\ \text{\AA}^0$	b) $4.932\ \text{\AA}^0$
	c) $3.526\ \text{\AA}^0$	d) $4.008\ \text{\AA}^0$
20.	Assuming Oxygen molecule to be spherical in shape, calculate the volume of a single molecule of oxygen if its radius is 150pm. Also calculate the percentage of empty space in one mole of the gas at STP.	
	a) 90.08 %	b) 88.02%
	c) 99.96%	d) 70.87%
21.	A perfectly elastic spherical balloon of 0.2 diameters was filled hydrogen a sea level. What will be its diameter when it has risen to an altitude where the pressure is 0.65 atm (Assume no change in temperature)	
	a) 0.333m	b) 0.2308m
	c) 0.124m	d) 0.1154m
22.	The volume expansitivity of a gas under constant pressure is 0.0037. Calculate its volume at $-100^\circ\text{C}$ if its volume at $100^\circ\text{C}$ is $685\text{cm}^3$ .	
	a) $630\text{cm}^3$	b) $315\text{cm}^3$
	c) $300\text{cm}^3$	d) $500\text{cm}^3$
23.	a and b are van der waals constant for gases. Chlorine is more easily liquefied than ethane because.	

	a) 'a' and 'b' for $\text{Cl}_2 < 'a'$ and 'b' for $\text{C}_2\text{H}_6$	b) 'a' for $\text{Cl}_2 < 'a'$ for $\text{C}_2\text{H}_6$ but 'b' for $\text{Cl}_2 < 'b'$ for $\text{C}_2\text{H}_6$
	c) 'a' for $\text{Cl}_2 > 'a'$ for $\text{C}_2\text{H}_6$ but 'b' for $\text{Cl}_2 < 'b'$ for $\text{C}_2\text{H}_6$	d) 'a' and 'b' for $\text{Cl}_2 > 'a'$ and 'b' for $\text{C}_2\text{H}_6$
24.	Use of hot air balloons in sports and metrological observations is an application of	
	a) Boyle's Law	b) Newton's Law
	c) Kelvin's Law	d) Charle's Law
25.	The constant 'a' in van der Waal's equation is maximum in	
	a) Helium	b) Hydrogen
	c) Oxygen	d) Ammonia
26.	Value of universal constant gas constant 'R' depends upon	
	a) Temperature of the gas	b) Volume of gas
	c) Number of moles of gas	d) None of these
27.	How much should the pressure be increased in order to decrease the volume of a gas by 5% at a constant temperature?	
	a) 5%	b) 5.26%
	c) 10%	d) 4.26%
28.	The relation between $P_c$ , $V_c$ and $T_c$ is	
	$P_c V_c = RT_c$	$P_c V_c = 3R_c$
	$P_c V_c = 3/5RT_c$	$P_c V_c = 3/8RT_c$
29.	Steam distillation is based on	
	a) Boyle's Law	b) Charle's Law
	c) Dalton's law of partial pressure	d) Avogadro's Law
30.	Equal masses of methane and oxygen are mixed in an empty container at 25°C. The fraction of the total pressure exerted by oxygen is.	
	a) 1/2	b) 2/3
	c) $\frac{1}{2} \times (273/298)$	d) 1/3