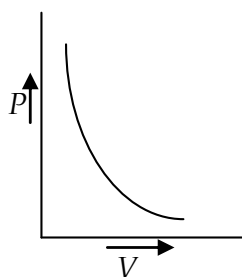


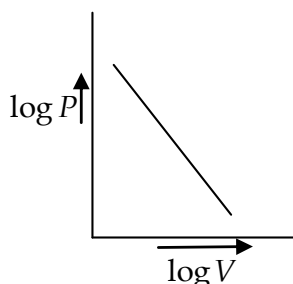
1. The correct gas equation is

- a)  $\frac{P_1 V_1}{P_2 V_2} = \frac{T_1}{T_2}$       b)  $\frac{V_2 T_2}{P_1} = \frac{V_1 T_1}{P_2}$       c)  $\frac{P_1 T_1}{V_1} = \frac{P_2 T_2}{V_2}$       d)  $\frac{V_1 V_2}{T_1 T_2} = P_1 P_2$

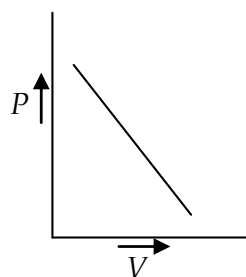
2. Which curve does not represent Boyle's law?



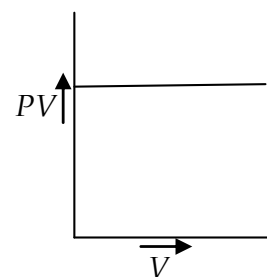
(A)



(B)



(C)



(D)

3. If a gas is heated at constant pressure its density

- a) will increase      b) will decrease  
c) will remain unchanged      d) may increase or decrease

4. Boyle's law is applicable in

- a) isobaric process      b) isochoric process      c) isothermal process      d) adiabatic process

5. A cylinder was filled with gaseous mixture containing CO and  $N_2$  equal mass. The ratio of their partial pressures in cylinder is

- a) 1:1      b) 1:2      c) 2:1      d) 1:3

6. Pressure remaining constant, the volume of a given sample of gas at  $127^\circ\text{C}$  will be doubled at

- a)  $254^\circ\text{C}$       b)  $527^\circ\text{C}$       c) 400K      d)  $800^\circ\text{C}$

7. 120 gm of an ideal gas of molecular weight 40 gm/mol are confined to a volume of 20 l at 400 k using  $R = 0.0821 \text{ L atm k}^{-1} \text{ mol}^{-1}$ . The pressure of the gas is (in atm)

- a) 4.90      b) 4.926      c) 5.02      d) 4.96

8. For a given mass of a gas if pressure is reduced to half and temperature is increased two times the volume becomes

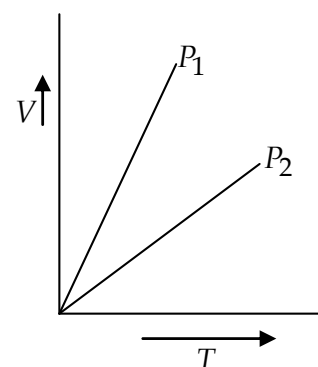
- a)  $\frac{V}{4}$       b)  $2V^2$       c) 6V      d) 4V

9. There is 10 L of gas at STP. Which of the following changes keep the volume constant.

- a) 273 K and 2 atm      b)  $273^\circ\text{C}$  and 2 atm      c)  $546^\circ\text{C}$  and 0.5 atm      d)  $0^\circ\text{C}$  and 0 atm

10. V versus T curves at constant pressure  $P_1$  and  $P_2$  for an ideal gas are shown in figure. Which is correct.

- a)  $P_1 > P_2$   
b)  $P_1 < P_2$   
c)  $P_1 = P_2$   
d) all of these



11. A gaseous mixture contains 1 g  $H_2$ , 4 g He 7 g  $N_2$  and 8 gm  $O_2$ . The gas having the highest partial pressure is  
 a)  $H_2$                                       b)  $O_2$                                       c) He                                      d)  $N_2$
12. The ratio of rate of diffusion of  $CO_2$  and  $SO_2$  at same P and T is  
 a)  $4 : \sqrt{11}$                                       b)  $\sqrt{11} : 4$                                       c) 1 : 4                                      d) 1 : 6
13. If a mixture of gases has a total pressure of 100 cm Hg and partial pressure of nitrogen in the mixture is  
 a) 4%                                      b) 40%                                      c) 400%                                      d) 2.5%
14. At a constant temperature what should be the percentage increase in pressure for a 5% decrease in the volume of the gas  
 a) 5%                                      b) 10%                                      c) 5.26%                                      d) 4.26%
15. The density of a gas A is twice that of a gas B at the same temperature. The molecular mass of B is thrice that of A. The ratio of the pressures of A and B will be  
 a) 6:1                                      b) 7:8                                      c) 2:5                                      d) 1:4
16. Which of the following equation is correct on the basis of ideal gas equation?  
 a)  $pv = dRT$                                       b)  $pv = \frac{W}{N_A}RT$                                       c)  $pM = dRT$                                       d)  $pv = \frac{N}{M}RT$
17. A gas with molecular formula  $C_nH_{2n+2}$  diffuses through a porous plug at a rate  $\frac{1}{6}$ th of the rate of diffusion of hydrogen gas under similar conditions. The formula of the gas is  
 a)  $C_2H_6$                                       b)  $C_{10}H_{22}$                                       c)  $C_5H_{12}$                                       d)  $C_6H_{14}$
18.  $100\text{cm}^3$  of  $NH_3$  diffuses through a pin hole in 32.5 sec. How much time will 60 cc of  $N_2$  take to diffuse under the same conditions?  
 a) 15 sec                                      b) 25 sec                                      c) 20 sec                                      d) 30 sec
19. Under similar condition which of the following gases will diffuse four times as quickly as oxygen  
 a) He                                      b)  $H_2$                                       c)  $N_2$                                       d)  $D_2$
20. The rate of diffusion of  $H_2$  and  $D_2$  are in the ratio  
 a) 1 : 1                                      b)  $\sqrt{2} : 1$                                       c) 4 : 1                                      d) 1 : 4
21. 50 volume of  $H_2$  take 20 minutes to diffuse out of a vessel. How long will 40 volume of  $O_2$  take to diffuse from the same vessel under the same condition?  
 a) 16 min                                      b) 8 min                                      c) 32 min                                      d) 64 min
22. The molecular weights of two ideal gases A and B are respectively 100 and 200 one gram of A occupies V L at STP. What is the volume in L occupies by 1 gram of B at STP.  
 a)  $\frac{V}{2}$                                       b) V                                      c)  $V^2$                                       d) 2V
23. A sample of a gas occupies 600 ml at  $27^\circ\text{C}$  and 1 atm. What will be the volume at  $127^\circ\text{C}$  if the pressure is kept constant?  
 a) 200 ml                                      b) 300 ml                                      c) 600 ml                                      d) 800 ml
24. Graham's law of diffusion is useful to detect one of the following gases in coal mine  
 a) oxygen                                      b) sulphur dioxide                                      c) Marsh gas                                      d) none of the above
25. Rate of diffusion is independent of  
 a) temperature                                      b) nature of the substance  
 c) molecular mass                                      d) gravitational