

**Topic : Gaseous State**
**Type of Questions**

Single choice Objective ('-1' negative marking) Q.1 to Q.4

(3 marks, 3 min.)

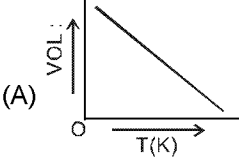
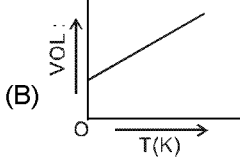
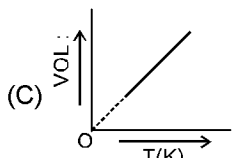
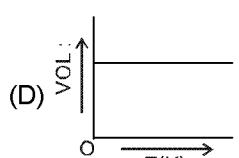
M.M., Min.

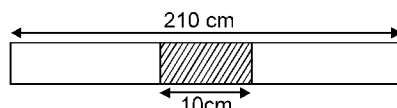
[12, 12]

Subjective Questions ('-1' negative marking) Q.5 to Q.9

(4 marks, 5 min.)

[20, 25]

- At constant pressure for a fixed amount of gas, which of the following represents Charles law :  
 (A)  $V \propto \frac{1}{T}$                       (B)  $V \propto T$                       (C)  $V \propto \frac{1}{T^2}$                       (D)  $V \propto d$
- If  $V_0$  is the volume of a given mass of gas at 273 K at constant pressure, then according to Charles law, the volume at 10°C will be :  
 (A)  $10 V_0$                       (B)  $\frac{1}{273} (V_0 + 10)$                       (C)  $V_0 + \frac{10}{273}$                       (D)  $\frac{283}{273} V_0$
- The correct representation of Charles law is given by :  
 (A)                       (B)                       (C)                       (D) 
- Which of the following shows explicitly the relationship between Boyles law and Charles law :  
 (A)  $\frac{P_1}{P_2} = \frac{T_1}{T_2}$                       (B)  $PV = K$                       (C)  $\frac{P_2}{P_1} = \frac{V_1}{V_2}$                       (D)  $\frac{V_2}{V_1} = \frac{P_1}{P_2} \times \frac{T_2}{T_1}$
- 20 mL of hydrogen gas measured at 7°C is heated to 77°C. What is the new volume of gas at the same pressure?
- At what temperature in centigrade, will the volume of a gas at 0°C double itself, pressure remaining constant ?
- A flask is of capacity one litre. What volume of air will escape from the open flask, if it is heated from 27°C to 37°C? Assume pressure to be constant.
- A balloon blown up with 1 mole of gas has a volume of 480 mL at 14°C. At this stage, the balloon is filled to (7/8)th of its maximum capacity. Suggest :  
 (a) Will the balloon burst at 30°C ?                      (b) The minimum temperature at which it will burst.
- A mercury column with a length 10 cm is in the middle of a horizontal tube with a length 210 cm closed at both ends . If the tube is placed vertically, the mercury column will shift through a distance 10 cm from its initial position .



- At what distance will the centre of the column be from the middle of the tube,
- if one end of the tube placed horizontally is opened to atmosphere.
  - if the upper end of the tube placed vertically is opened to atmosphere.
  - if the lower end of the tube placed vertically opened to atmosphere.

[Take atmospheric pressure = 100 cm of Hg]



