

**UNIT- 6 – GASEOUS STATE****I. Answer in brief (2/3 marks)**

1. State Boyle's law.
2. Give the mathematical expression that relates gas volume and moles.
3. What are ideal gases? In what way real gases differ from ideal gases.
4. Can a Van der Waals gas with  $a = 0$  be liquefied? explain.
5. Name two items that can serve as a model for Gay Lusaac' law and explain.
6. Distinguish between diffusion and effusion.
7. Aerosol cans carry clear warning of heating of the can. Why?
8. Why do astronauts have to wear protective suits when they are on the surface of moon?
9. Which of the following gases would you expect to deviate from ideal behaviour under conditions of low temperature  $F_2$ ,  $Cl_2$  or  $Br_2$ ? Explain.

**II. Answer in a paragraph (5 marks)**

1. Write the Van der Waals equation for a real gas. Explain the correction term for pressure and volume.
2. Derive the values of critical constants in terms of van der Waals constants.
3. When ammonia combines with HCl,  $NH_4Cl$  is formed as white dense fumes. Why do more fumes appear near HCl?