Maximum Marks: 10   **(OBJECTIVE TYPE)**   Time Allowed: 10 Min.

NOTE: Tick The Correct Option:

1. **Van der Waals derived:**
   - (a) Absolute zero
   - (b) General gas equation
   - (c) Kinetic equation
   - (d) Real gas equation

2. **The collisions between gas molecules are, essentially:**
   - (a) Elastic
   - (b) Inelastic
   - (c) Both 'a' & 'b'
   - (d) None

3. **At OK, all type of _____ motion ceases.**
   - (a) Molecular
   - (b) Electronic
   - (c) Both 'a' & 'b'
   - (d) None

4. **The critical temperatures of different gases are in the order:**
   - (a) $CO_2 > NH_3 > N_2 > O_2$
   - (b) $NH_3 > CO_2 > N_2 > O_2$
   - (c) $CO_2 > NH_3 > O_2 > N_2$
   - (d) $NH_3 > CO_2 > O_2 > N_2$

5. **Real gases obey gas laws under:**
   - (a) Low temperature and low pressure.
   - (b) Low temperature and high pressure.
   - (c) High temperature and low pressure.
   - (d) High temperature and high pressure

6. **The value of excluded volume 'b' depends upon:**
   - (a) The size of gas molecules
   - (b) Intermolecular forces
   - (c) Polarity of the molecules
   - (d) All the above

7. **The SI units of van der Waals constant 'b' are:**
   - (a) $m^2 mol^{-1}$
   - (b) $m^3 mol^{-1}$
   - (c) $dm^3 mol^{-2}$
   - (d) $dm^3 mol^{-1}$

8. **If the values of van der Waals constants 'a' and 'b' are zero, the gas will be:**
   - (a) Ideal
   - (b) Non-ideal
   - (c) Real
   - (d) All

9. **The minimum temperature of the natural plasma is:**
   - (a) $2000°C$
   - (b) $10000°C$
   - (c) $20000°C$
   - (d) $25000°C$

10. **Which one is an example of artificial plasma?**
    - (a) Auroras
    - (b) Neon sings
    - (c) Lightning bolts
    - (d) All

Maximum Marks: 20   **(SUBJECTIVE TYPE)**   Time Allowed: 40 Min.

SECTION-I

Q.2: Give brief answers to the following questions: (12)

 i. Give two causes of deviation of real gases from ideal behavior.

 ii. Why do polar gases deviate more from ideality than non-polar gases?

 iii. Why was volume correction done by van der Waals?

 iv. The pressure of NH_3 gas at given condition (say 20 atm pressure and room temperature) is less when calculated by van der Waals equation than that calculated by general gas equation, why?

 v. What are van der Waal's constants? What is their physical significance?

 vi. Where is plasma found?

SECTION-II

NOTE: Attempt All Questions: (08)

Q.0: Describe Linde's method for the liquefaction of gases.

Q.0: Real gases deviate from ideal behaviour at low temperature and high pressure. Explain.