



XI-SCI : Chemistry
States of Matter,

DATE:

TIME: 1 hour 30
minutes

MARKS: 25

SEAT NO:

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Note:-

1. All Questions are compulsory.
2. Numbers on the right indicate full marks.

Section A

Q.1 Select and write the correct answer.

(4)

1. The unit of surface tension is
A) dynes cm^{-2} B) ergs/cm
C) Joules m^{-1} D) Nm^{-1}
2. Select the correct order of molecular velocities
A) $u < v < \alpha$ B) $u > v > \alpha$
C) $v > u > \alpha$ D) $v < u < \alpha$
3. A sample of gas has a volume of 0.2 lit measured at 1 atm pressure and 0 °C. At the same pressure, but at 273 °C its volume will become
A) 0.1 lit B) 0.4 lit
C) 0.8 lit D) 0.6 lit
4. The compressibility factor for an ideal gas is
A) 1.5 B) 1.0
C) 2.0 D) ∞

Q.2 Answer the following.

(3)

1. Under what conditions do real gases show maximum deviation from ideal gas behaviour?
2. Arrange solid, liquid and gas in order of energy, giving reasons.
3. Define: Polarizability

Section B

Attempt any Four

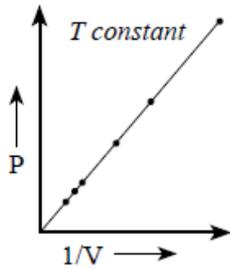
- Q.3 Why liquids have a definite volume but no definite shape? **(2)**
- Q.4 Why does bicycle tyre burst during summer? **(2)**
- Q.5 Give the applications of surface tension. **(2)**
- Q.6 What is air? **(2)**
- Q.7 Hot air balloons float in air because of the low density of the air inside the balloon. Explain this with the help of an appropriate gas law. **(2)**
- Q.8 Convert : **(2)**
(a) 101.325 kPa to bar (b) - 100 °C to Kelvin

Section C

Attempt any Two

Q.9

(3)



With the help of graph answer the following :

- Graph shows relation between pressure and volume. Represent the relation mathematically.
- Identify the law.
- Write the statement of law.

Q.10 Give the properties of liquid state.

(3)

Q.11 A neon-dioxygen mixture contains 70.6 dioxygen and 167.5 g neon. If pressure of the mixture of the gases in the cylinder is 25 bar. What is the partial pressure of dioxygen and neon in the mixture?

(3)

Section D
Attempt any One

Q.12 Explain variation in PV with P for H_2 , He, N_2 , CO_2

(4)

Q.13 The volume of a given mass of a gas at $0^\circ C$ is 2 dm^3 . Calculate the new volume of the gas at constant pressure when

(4)

- The temperature is increased by $10^\circ C$
- The temperature is decreased by $10^\circ C$