Time : Three Hours   Maximum : 75 Marks

SECTION-A (20 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks   (1 0 x 2 = 20)

1   Write the uses of diborane.
2   Draw the structures of dithionous and dithionic acids.
3   How will you prepare vanillin?
4   Give the uses of acrolein,
5   What are vicinal and geminal dihalides?
6   Give any one method for the preparation of resorcinol.
7   Write any two statements for the second law of thermodynamics.
8   What is the physical significance of entropy?
9   Define the term chemical potential.
10   What is meant by chemical equilibrium?

SECTION - B (25 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 5 = 25)

11 a Describe the preparation and properties of silicones.
OR
b Give an account on the preparation properties and uses of iodine monochloride.

12 a Explain the chemical properties of benzaldehyde.
OR
b How will you prepare phthalic acid? Discuss the chemical properties of
    phthalic acid.

13 a Discuss the methods used for the preparation of chloroform. Give its properties.
OR
b Write a note on the properties of resorcinol.

14 a State Carnot's theorem. Explain the efficiency of a heat engine.
OR
b . Derive an expression for the free energy change in an isothermal process.

15 a Derive Gibb's - Duhem equation.
OR
b Explain LeChatelier's principle with suitable example.

SECTION - C (30 Marks)
Answer any **THREE** Questions
ALL Questions Carry **EQUAL** Marks (3 x 10 = 30)

, 16 Describe the properties and structure of
        (i) Borozole and (ii) Permonosulphuric acid.   (5 + 5)

17   Explain the preparation, properties and uses of
        (i) Cinnamaldehyde and (ii) Acetonyl acetone ,   (5 + 5)

18   How will you distinguish primary, secondary and tertiary alcohols?

19   Derive an expression for the entropy change of an ideal gas with changes
        in P, V a n d T .

20   How will you calculate the absolute entropies of solids, liquids and gases?

Z-Z-Z   END