CHEMISTRY (OPTIONAL) PAPER - II

TIME ALLOWED: THREE HOURS **MAXIMUM MARKS: 100**

NOTE: Attempt any FIVE questions only. Write Answers in English.

Q.1 (a) What are lipids? How are lipids classified? Why lipids are important to humans? 10

(b) Describe different levels of structure of Proteins. 10

Q.2 (a) Write a note on any one of the following:- 10

(i) Column Chromatography

(ii) Thin layer chromatography

(b) Discuss principle of IR Spectroscopy. 10

Q.3 (a) How does acetaldehyde react with the following reagents:- 10

(i) NaHSO3 (ii) HCN

(iii) CH3MgI (iv) NH2OH

(v) Dil NaOH

(b) How will you distinguish between acetaldehyde and Ketone? 10

Q.4 (a) Give mechanism of Friedel craft acylation of benzene. 10

(b) How will you synthesize the following compounds from benzene? 10

(i) Cyclohexane (ii) Chlorobenzene

(iii) Benzene sulfonic acid (iv) Nitrobenzene

(v) Maleic anhydride.

Q.5 (a) What is resonance? Give conditions necessary for resonance. Illustrate your answer with a suitable example. 10.

(b) Discuss the effect of Hydrogen bonding on the boiling points and water solubilities of organic compounds. 10

Q.6 (a) What is dye? How are dyes classified on the basis of structure? 10

(b) Explain the followings:- 10

(i) Geometrical Isomerism

(ii) Chiral molecule.

Q.7 (a) Which of the following is a Chromophore? 2

(i) NO2 (ii) SO3H

(iii) oH (iv) Cooh

(b) Which of the following is an auxochrome? 2

(i) –NO (ii) NO2

(iii) oH (iv) –N=N-

(c) Why benzene undergoes electrophilic substitution reactions whereas alkenes undergo addition reactions? 2

(d) How do identify the following functional groups by IR Spectroscopy? 2

(i) –oH (ii) –NH2

(iii) –CN (iv) C = o

(e) What are carbohydrates? How are they classified. 2

(f) What are pesticides? 2

(g) Write down structures of glucose and fructose. 2

(h) What are the important industrial applications of cellulose? 2

(i) What are cosmetics? 2

(j) What are pigments?