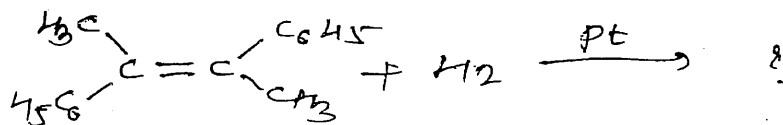


OR

- (I) With suitable example explain the term- An alternating axis of symmetry. 3
- (II) Define topicity. Give an example of enantiotopic ligand. 2

Attempt **any three** of the following :-

- (b) (I) What is action of following on thiophene. 3
 (i) SO_2Cl_2 at room temp. (ii) H_2SO_4 ?
 (II) Draw resonance structures of furan. 2
- (c) Give synthesis of following 5
 (i) Paracetamol (ii) Bifenox-I
- (d) (I) Draw boat and chair conformations of cyclohexane and comment on their relative stabilities. 3
 (II) Complete the following reaction and discuss its stereo chemistry. 2



- (e) (I) 'Pyridine is stronger base than pyrrole' Explain. 3
 (II) Give Hantzsch synthesis for pyridine. 2
3. (a) An organic compound has molecular formula $\text{C}_5\text{H}_{10}\text{O}$. It's I.R. spectrum gives peak at 1720cm^{-1} . It's PMR spectrum gives signals at δ 0.9ppm (t) 6H, δ 2.4 PPM (q) 4H. Determine it's index of hydrogen deficiency. Assign the structure to the compound. 5

OR

- (a) (I) Define the term monomer. Give preparation and one use of teflon. 3
 (II) Explain atactic polymers. 2

Attempt **any three** of the following :-

- (b) (I) What are the advantages of I.R. spectroscopy? 3
 (II) Give the number of PMR signals and splitting pattern of $\text{CH}_3\text{-O-CH}_3$ 2
- (c) (I) What is the importance of base peak and molecular ion peak in mass spectrometry? 3
 (II) Discuss the importance of D_2O exchange in PMR Spectroscopy. 2
- (d) (I) What is diene polymerization? Explain 1, 2 & 1, 4 addition polymerization. 3

[TURN OVER]

- (II) Draw the structure of polymer obtained by polymerization of adipic acid + hexamethylenediamine. Give one use of it. 2
- (e) (I) Discuss Norrish type I photochemical cleavage of ketones. 3
(II) What is photosensitization? Give one example. 2
4. (a) (I) Draw Haworth formula for β -D-glucopyranose. 3
(II) Give the acetylation reaction of D(-) fructose. 2
- OR**
- (a) (I) Explain Karrer's work in structure determination of nicotine. 3
(II) Draw the structure of camphore and give its commercial importance. 2
Attempt **any three** of the following :-
- (b) (I) Explain Merrifield's solid phase peptide synthesis to prepare a dipeptide. 3
(II) Explain: (a) Zwitter ion (b) isoelectric point w.r.t α -amino acids. 2
- (c) (I) How will you prepare phenylalanine using Erlenmeyer azlactone synthesis? 3
(II) What are fats and oils? How do they differ? 2
- (d) (I) How will you convert D(+) glucose into D(-) fructose? 3
(II) Give the classification of carbohydrates. 2
- (e) (I) Give analytical evidence to prove that citral is an acyclic monoterpenoid having an isopropylidene group. 3
(II) What are the differences between vitamins and hormones? 2
5. (a) Discuss effect of temperature on sulphonation of naphthalene. 3
- OR**
- (a) Explain mechanism of acetal formation 3
(b) What is Simmons Smith reaction? 2
(c) Explain in brief phase transfer catalyst 3
- OR**
- (c) What are the factors affecting Walden inversion? 3
(d) Explain the term 'Linear synthesis'. 2
(e) Give biomedical uses of synthetic polymers. 3
(f) What is the action of periodic acid on D(+) glucose? 3
(g) Explain the term (i) Chromophore (ii) Auxochrome. 2
- OR**
- (g) Distinguish between addition and condensation polymerization. 2
(h) How will you convert citral into geraniol and nerol? 2
- OR**
- (h) What is trans-esterification? 2