CHE 6B 10 ORGANIC CHEMISTRY III

MODULE 1

STRUCTUTAL ELUCIDATION USING SPECTRAL DATA

SECTION A

1. What is chromophore? Give an example
2. Write the chromophore present in nitrobenzene
3. Write the fingerprint region in IR spectroscopy. What is the significance
4. State Beer Lamberts law
5. Predict Rf value in TLC
6. Give one example each for mobile and stationary phase in column chromatography.
7. Represent the HNMR spectrum of CH3CH2Br
8. Predict the □max of 3 – methyl-pent-3ene-2one

SECTION B

1. How is IR spectroscopy useful for distinguishing inter and intramolecular H bonding in alcohols.
2. Write a note on electronic transitions in organic molecules giving suitable examples.

SECTION C

1. What is chemical shift?
2. Explain spin spin splitting . Predict the HNMR spectra of ethyl acetate and propanoic acid.

MODULE 2

CARBOHYDRATE

SECTION A

1. Draw the fischer projection of D(+) glucose .
2. What are osazones
3. What are polysaccharides. Give two examples.
4. Write the hydrolysis product of sucrose.
5. What are products when glucose is treated with periodic acid.
6. Give one example of a disaccharide. Draw its structure.
7. Write the composition of invert sugar.
8. Draw the structure of epimer of D(+) glucose.

SECTION B

1. What are anomers? Explain muta rotation.
2. Give an account on structure of starch and glycogen.

MODULE 3

PROTEINS AND NUCLEIC ACIDS

SECTION A

1. Define isoelectric point
2. What is biuret test
3. Name the base present in nucleic acids
4. Represent the zwitter ion of an amino acid
5. What is ninhydrin test
6. What are the constituents of nucleic acids.

SECTION C

1. Describe the strecker synthesis of phenyl alanine,
2. Explain the principle of solid phase poly peptide synthesis

3. Describe the structure of Nucleic acid s and their role in heredity and protein synthesis.

MODULE 4

BIOMOLECULES

SECTION A

1. Draw the structure of vitamin C
2. What is the effect of hydrogenation of double bonds in oils,

SECTION B

1. Give an account of classification of vitamins. List the diseases caused by their deficiency.
2. Draw the structure of cholesterol. Give any two biological functions of cholesterol.

MODULE 5

NATURAL PRODUCTS

SECTION B

1. Write a note on physiological functions of coniine and nicotine. Draw their structure.
2. Describe the general principles of extraction of alkaloids. Draw the structure of quinine

SECTION C

1. Give an account on structure of natural rubber.

2. Write a note on vulcanization of rubber and show the substitution at allylic carbon and addition across double bond.

MODULE 6

PERICYCLIC REACTIONS

SECTION B

1. Represent the MO of ethylene and 1,3 butadiene. Write the number of nodes present.
2. Explain the feasibility of thermal and photochemical reactions of 2+2 cycloaddition reaction using FMO approach.
3. Describe the mechanism of claisen rearrangement.
4. Discuss con rotation and dis rotation in electrocyclic reactions.
5. Discuss the wood ward Hoffmann selection rule for sigmatropic rearrangement.