

**B.SC. CHEMISTRY
THIRD SEMESTER
ORGANIC CHEMISTRY-II
BSC – 302**
[USE OMR FOR OBJECTIVE PART]

**SET
A**

Duration: 1:30 hrs.

Full Marks: 35

Time: 15 mins.

(Objective)

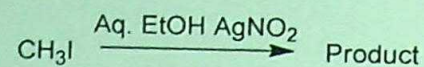
Marks: 10

Choose the correct answer from the following:

1×10=10

- The isoelectric point (pI) of an amino acid is the pH at which:
 - The amino acid exists only in cationic form
 - The amino acid exists only in anionic form
 - The amino acid exists as a zwitterion with no net charge
 - The amino acid precipitates out of the solution
- In Edman degradation, the reagent used is:
 - Phenyl isothiocyanate (PITC)
 - Dinitrofluorobenzene (DNFB)
 - Ninhydrin
 - Sodium dodecyl sulfate (SDS)
- At a pH below its isoelectric point, an amino acid will exist predominantly as:
 - Zwitterion
 - Cation
 - Anion
 - Radical
- How many peptide bonds will be present in a pentapeptide?
 - 1 bond
 - 4 bonds
 - 5 bonds
 - No bonds
- The basic building blocks of triglycerides are:
 - Glycerol and fatty acids
 - Glycerol and amino acids
 - Fatty acids and sugars
 - Sterols and phosphates
- Which of the following compound is an example of isonitrile compound?
 - C_2H_5CONHR
 - C_2H_5COOH
 - C_2H_5NC
 - C_2H_5CN
- Tributylamine is a
 - 2° Amine
 - 3° Amine
 - 1° Amine
 - 0° Amine
- Sandmeyer reaction involves the replacement of the diazonium group by..... *Fill the blank*
 - Aniline
 - Ethyl amine
 - Halogens
 - Metal

9.



- a. C_2H_5
c. $\text{CH}_3\text{-CH}_3$

- b. $\text{CH}_3\text{-NO}_2$
d. $\text{CH}_3\text{CH}_2\text{NO}_2$

10. Diazonium salts be kept at during their preparation

- a. $10\text{-}15^\circ\text{C}$
c. $0\text{-}5^\circ\text{C}$
b. $20\text{-}25^\circ\text{C}$
d. $30\text{-}35^\circ\text{C}$

(Descriptive)

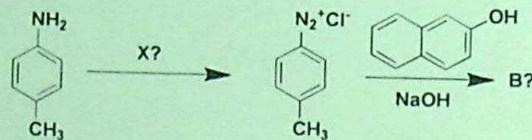
Time : 1 hr. 15 mins.

Marks: 25

[Answer question no.1 & any two (2) from the rest]

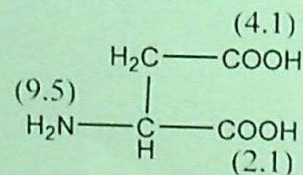
1. a. What is the difference between oils and fats?
b. Write down the reagent X and product B of the following reaction.

2+3=5



2. a. An acidic amino acid has the following pKa values. Find the isoelectric point?

2+3+2+2
+1=10



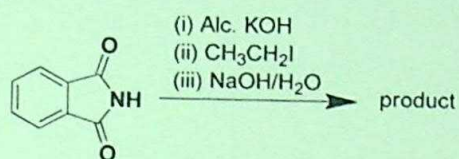
- b. Write the Edman method for N-terminal peptide analysis.
c. How are the carboxylic group and the amino group activated/protected in peptide synthesis?
d. Why does a peptide show cis-trans isomerism?
e. What is the hydrogenation of oils?

3. a. Write the ninhydrin reaction with mechanism.
 b. Define zwitterion and rancidity.
 c. What is saponification?
 d. What is the iodine number of fat?

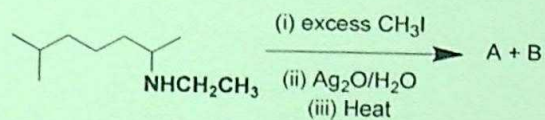
3+3+2+2
=10

4. a. Describe the principle and procedure of Hinsberg's test for distinguishing primary, secondary, and tertiary amines. Illustrate your answer with appropriate chemical reactions.
 b. Write down the product of the following reaction with detailed mechanism

4+3+3
=10

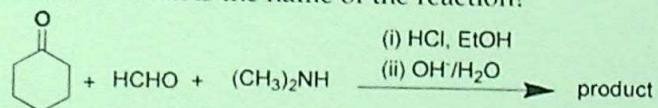


- c. Write down the products of the following reaction.

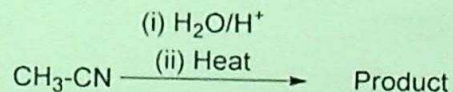


5. a. Write down the product of the following reaction with mechanism. What is the name of the reaction?

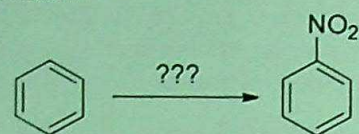
4+3+3
=10



- b. Write down the product and give the detailed mechanism of hydrolysis of nitriles



- c. What is the reagent used in the following reaction? Deduce the detailed mechanism.



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