Shree H.N.Shukla Group of Colleges

B . Sc. (Sem-VI) (CBCS) (Unit Test)

C-602: Organic and Spectroscopy

Time: 1.5 hours

Date: /04/2021 **Total Marks: 30**

Instructions

1. **All Question are compulsory.**
2. **Figure to the right indicate the full marks of Questions.**

Q.1 (A) Answer the Following. **[01]**

(i) Write structure of Tyrosine.

(ii) What is Zwitter ion?

(iii) Those α-amino acid supplied by the diet are called as _____

(iv)Which reagent used for the synthesis of polypeptide in Bergmann Method?

(v) Give the example of protein which contain Iron (Fe).

(B) Answer the Following (any one). **[02]**

(i) Describe Denaturation of protein

(ii) Prove that Thyroxine contain one –OH and one $–NH_2$ group.

(C) Answer the Following (any one). **[03]**

(i) Explain Gabriel pthalimide synthesis of α-amino acid.

(ii) Explain Isoelecric point (P^I).

(D) Answer the Following (any one). **[05]**

(i) Give the reaction due to both the amino (-NH2) and carboxylic (-COOH) group in α-amino acid.

(ii) Prove the structure of Thyroxine.

Q.2 (A) Answer the Following. **[01]**

(i) What is full form of NMR and TMS.

(ii) Which isotope of Carbon in NMR active?

(iii) Give Number of signal in the compound given below.

CH3-CH=CH2

(iv) Calculate DBE for given molecular formula C8H8O2

(v) Write the examples of nuclei, which possess spin value(I)=1/2

(B) Answer the Following (any one). **[02]**

(i) Define: geminal and vicinal coupling.

(ii) Why TMS used as reference in NMR spectroscopy.

(C) Answer the Following (any one). **[03]**

(i) Explain shielding and deshielding effect.

(ii) Determine the molecular structure from the following data:

M.F. : C8H8O2

IR : 3400(br), 2950, 2530,1715, 1300, 1060, 810 cm-1

NMR :

No. of Signal	**No. of protons**	**Multiplicity**	**Chemical shift(δppm)**
a	3H	s	2.01
b	1H	s	10.75
c	4H	m	7.15

(D) Answer the Following (any one). **[05]**

(i) Determine the molecular structure from the following data:

M.F. C9H10O2

IR : 3030, 2930, 1670, 1598, 1258, 1021, 833 cm-1

NMR :

No. of Signal	No. of protons	Multiplicity	Chemical shift(δppm)
a	3H	s	2.50
b	3H	s	3.90
c	4H	complex	7.83

(ii) Write a short note on Deuterium labelling.