Roll No. | | | | | | | | | | | | **Total No. of Pages : 03**

Total No. of Questions : 09

B.Sc. (Non-Medical) (Sem.–6)

ORGANIC CHEMISTRY-IV

Subject Code :BSNM-601-18

M.Code : 79493

Date of Examination : 02-01-2023

Time : 3 Hrs. **Max. Marks : 50**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying ONE marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Multiple Choice Questions/Write briefly :

a) The functional group region in IR spectroscopy-

a) 4000-1300 cm^{-1} c) 1300-900 cm^{-1}

b) 900-650 cm^{-1} d) 2000-1600 cm^{-1}

b) Which of the following is natural polymer?

a) Celluloid c) Rayon

b) Cellulose d) Terylene

c) Which of the following spectroscopy absorbs UV light?

a) MS c) IR

b) NMR d) UV

d) Mustard gas is prepared by action of ethene on :

a) Thionyl chloride c) Sulphuryl chloride

b) Sulphur monochloride d) Sulphur dioxide

e) What are Homopolymers?

f) Complete the reaction-

$$ROH + H_2S \xrightarrow[400°C]{ThO_2}$$

g) What are the two components of starch?

h) What are essential and non-essential amino acids?

i) What are nucleotides?

j) What is the source of radiation of UV light?

SECTION-B

2. What are mercaptan and explain **any one** method of its preparation. How does ethyl mercaptan react with :

   (a) Aldehydes

   (b) Ketones

   (c) Acid chloride.

3. What is condensation or step growth polymerisation? Explain the following condensation polymerisation reaction:

   (a) Nylon-66

   (b) Nylon-6

4. Explain shielding and de-shielding effect in NMR spectroscopy with example. How many numbers of peaks are in the following :

   (a) Toluene

   (b) Acetophenone

   (c) Ethanol.

5. Explain the effect of conjugation in case of UV spectroscopy. A chemist has a sample of Phenylalanine with an absorbance of 0.81 at a wavelength of 257 nm. The molar absorption coefficient is 8850 $M^{-1}cm^{-1}$. The path length of light is 3 cm. What is the concentration of sample?

6. Explain disaccharide and polysaccharides with examples. Also, explain Wohl Degradation reaction.

SECTION-C

7. Explain principle and applications of IR spectroscopy.

8. Write the synthesis of Di-ethyl malonate and discuss its all physical and chemical properties.

9. What are amino acids and iso-electronic points of amino acids? Explain the formation and synthesis of phenylalanine using Erlemeyer Azlactone.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.