

# C. U. SHAH UNIVERSITY

## Summer Examination-2022

Subject Name: Chemical Structure and Macromolecules

Subject Code: 4SC01CSM2

Branch: B.Sc. (Microbiology)

Semester: 1

Date: 26/04/2022

Time: 11:00 To 01:00

Marks: 50

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

- Q-1 Attempt the following questions: (10)**
- a) Which sugar is present in DNA? (1)
  - b) What do you mean by Van der waals force? (1)
  - c) What is epimer of glucose? (1)
  - d) What do you mean by Carbohydrates? (1)
  - e) Give one example of disaccharide. (1)
  - f) Give an electronic configuration of F and Mg. (1)
  - g) Define: Proteins. (1)
  - h) What is the composition of nucleotides? (1)
  - i) Draw the structure of purine bases. (1)
  - j) Which base is not found in RNA? (1)

**Attempt any four questions from Q-2 to Q-8**

- Q-2 Attempt all questions (10)**
- a) Explain nucleotides with examples (5)
  - b) Write a note on primary and secondary structure of proteins (5)
- Q-3 Attempt all questions (10)**
- a) Explain structure and function of different types of RNA. (5)



- b) Write a note on the synthesis of polypeptide. (5)
- Q-4 Attempt all questions (10)**
- a) Write the electronic configuration of Na to Ca elements (5)
- b) Explain the general reaction of monosaccharides due to presence of -OH, -CO- and -CHO group. (Any two reactions) (5)
- Q-5 Attempt all questions (10)**
- a) Discuss any two types of chemical bonds with proper examples. (5)
- b) Discuss stereo and optical isomerism in the sugar (5)
- Q-6 Attempt all questions (10)**
- a) Write the properties of nucleic acids (5)
- b) Write biological importance of insulin, glutathione (5)
- Q-7 Attempt all questions (10)**
- a) An organic substance on analysis was found to contain 10.06% C, 0.84 % H, and 89.10 % Cl, Calculate its empirical formula (5)
- b) Explain any two weak chemical forces. (5)
- Q-8 Attempt all questions (10)**
- a) Explain structure and function of different types of DNA. (5)
- b) Explain the shapes of the s, p and d orbitals (5)

