

C.U.SHAH UNIVERSITY

WADHWAN CITY

University (Winter) Examination -2013

Course Name : B.Sc(Micro) Sem-I

Subject Name: - Chemical Structure & Macromolecules

Duration :- 3:00 Hours

Date : 07/12/2013

Instructions:-

- (1) Attempt all Questions of both sections in same answer book / Supplementary.
- (2) Use of Programmable calculator & any other electronic instrument is prohibited.
- (3) Instructions written on main answer Book are strictly to be obeyed.
- (4) Draw neat diagrams & figures (If necessary) at right places.
- (5) Assume suitable & Perfect data if needed.

SECTION-I**Question No.1 is compulsory.**

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|-----|-----|---|---|
| Q-1 | (a) | Define Empirical Formula. | 1 |
| | (b) | What is Epimer? Give one example. | 1 |
| | (c) | Give one example of compound containing polar covalent bond. | 1 |
| | (d) | The empirical formula of an organic compound is CHO_2 . If its molecular weight is 90, what is its molecular formula? | 2 |
| | (e) | Give examples of reducing and non-reducing disaccharides. | 1 |
| | (f) | Give examples of lipid soluble vitamins. | 1 |
| Q-2 | (a) | Define Hydrogen bonding. Write the conditions for Hydrogen bonding and various types of Hydrogen bonding with example. | 5 |
| | (b) | An organic compound was found to contain 49.48% of carbon, 5.19% of hydrogen, 16.47% of oxygen and 28.86% of nitrogen. If its molecular weight is 194.19 gm/mol then find out its molecular formula. [Take Atomic weight of C=12, H=1, O=16 & N=14] | 5 |
| | (c) | Write the conditions for formation of covalent bond with example. | 4 |

OR

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|-----|-----|--|---|
| Q-2 | (a) | Define lipid. Classify lipids with example and write the functions of lipids. | 5 |
| | (b) | Define carbohydrates. Classify carbohydrates and write the functions of carbohydrates. | 5 |
| | (c) | Write about properties of triacylglycerols in brief. | 4 |
| Q-3 | (a) | What are the characteristics of covalent compounds? | 7 |
| | (b) | What are the characteristics of ionic compounds? | 7 |

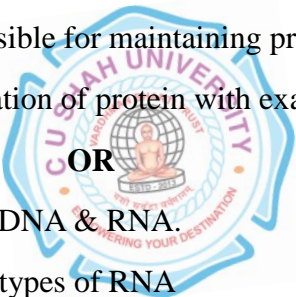
OR

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|-----|-----|---|---|
| Q-3 | (a) | Explain various reactions of monosaccharides, in detail. | 7 |
| | (b) | What are phospholipids? Write the functions of phospholipids. | 7 |



SECTION-II

Question No.4 is compulsory.

- Q-4 (a) Write the names of major elements that constitute protein. 1
(b) Give any four names of colour reactions of protein. 1
(c) Which sugar is present in RNA? 1
(d) Write the names of any four agents responsible for denaturation of protein. 1
(e) Who proposed the double helical structure of DNA and in which year? 1
(f) Define Chargaff's rule. 1
(g) Write the structure of purins found in nucleic acids. 1
- Q-5 (a) Write short note on β -pleated structure of protein. 5
(b) Write about the bonds responsible for maintaining protein structure. 5
(c) Write the functional classification of protein with example. 4
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OR
- Q-5 (a) Write the difference between DNA & RNA. 5
(b) Write a short note on various types of RNA 5
(c) Write the significance of some purine, pyrimidine and nucleotide analogs. 4
- Q-6 (a) Write the classification of protein based on chemical nature and solubility. 7
(b) Write down physical and chemical properties of amino acids. 7
- OR**
- Q-6 (a) Write in detail about the double helical structure of DNA. 7
(b) Write in detail about the structure and nomenclature of nucleotides. 7

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