

Code No: A109212301

R09

Set No. 2

II B.Tech I Semester Examinations, May 2011

BIOCHEMISTRY

Bio-Technology

Time: 3 hours

Max Marks: 75

Answer any FIVE Questions
All Questions carry equal marks

1. Explain in detail about the physical and chemical properties of proteins? [15]
2. Enumerate about:
 - (a) Compound Lipids
 - (b) Lipoproteins. [15]
3. Explain the structure of starch and its significance. [15]
4. Draw the structure of L-Serine and discuss the basic rules of RS system to represent the configurations of Biomolecules. [15]
5. Briefly classify amino acids based on side chain, acidic and basic properties. [15]
6. Discuss how Gibbs free energy is related with spontaneity of a chemical reaction. [15]
7. Discuss the Physico-chemical properties of water with relevance to its significant role in living organisms. [15]
8. Compare the cot value and complexity of DNA molecule. [15]

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Set No. 4

II B.Tech I Semester Examinations, May 2011

BIOCHEMISTRY

Bio-Technology

Time: 3 hours

Max Marks: 75

Answer any FIVE Questions
All Questions carry equal marks

1. Explain the differences between the primary structure of protein and amino acid composition of protein. [15]
2. What are the possible ring forms for α -D-Glucose and which form is more stable. Explain the reason. [15]
3. Give a flow chart representation of lipid classification with example and structures and add a note on significance of lipids in dietary food. [15]
4. Explain about:
 - (a) Inhibitors of protein synthesis
 - (b) mitochondrial and chloroplast protein synthesis. [15]
5. Describe the chemical structure, properties and functions of nucleosides and nucleotides? [15]
6. Define a buffer and discuss about few buffers that are commonly employed in the laboratory. [15]
7. Explain biological oxido-reduction reactions and discuss their role in metabolism. [15]
8. (a) Explain the significance of oxidative and non-oxidative phases of HMP shunt. (b) Glucose Tolerance test. [15]

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R09**Set No. 1**

II B.Tech I Semester Examinations, May 2011

BIOCHEMISTRY**Bio-Technology****Time: 3 hours****Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

1. Explain about:
 - (a) Metabolic precursors of amino acids
 - (b) Bio-synthesis of arginine. [15]
2. Write about the contribution of non covalent interactions in biomolecules. [15]
3. Explain briefly about the physical and chemical properties of fats and oils. [15]
4. How to carry out Glucose tolerance test and write its significance. [15]
5. Explain:
 - (a) Purine bases in plants
 - (b) Ribose and deoxyribose
 - (c) Nucleoside
 - (d) DNA denaturation. [15]
6. Briefly describe about:
 - (a) Stereochemistry of peptide chain
 - (b) Amino acids with positive charge. [15]
7. Write Fischer's, Haworth, Chair and boat structural configurations for D-Glucose. [15]
8. Calculate ΔG for hydrolysis of ATP at standard states of pH and Temperature (25°C). The concentration of ATP, ADP and Pi are 10⁻³M, 10⁻⁴M and 10⁻² M respectively. [15]

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R09**Set No. 3**

II B.Tech I Semester Examinations, May 2011

BIOCHEMISTRY**Bio-Technology****Time: 3 hours****Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

1. What are the functions of lipids? How are they classified? [15]
2. (a) Draw the structures for α -D-Glucose, α -L-Glucose and α -D-Mannose, β -D-Fructose.
(b) Explain how to differentiate D and L isomers in sugars. [15]
3. Define nucleic acids and write about the different types of nucleic acids. [15]
4. Discuss about solvent properties and structure of water. [15]
5. (a) What are reversible and irreversible processes?
(b) ΔG^0 for a reaction $A \dots > B$ is 10 kJ/mol^{-1} . For the reaction to be thermodynamically favorable what should be the [S]/[P] ratio. [15]
6. Write the chemical synthesis of Sugar esters. [15]
7. Discuss:
 - (a) Chemical synthesis of peptides by solid phase technique.
 - (b) Stereochemistry of peptide bond.
 - (c) Basic amino acids. [15]
8. Write about:
 - (a) Post-Translation modifications
 - (b) Energy requirements in peptide formation. [15]
