

Code No: A109212301

R09**Set No. 2**

II B.Tech I Semester Examinations, November 2010

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

Answer any FIVE Questions
All Questions carry equal marks

1. Discuss why water is an universal solvent based on its physico-chemical properties. [15]
2. Explain in detail about the phases of protein synthesis. [15]
3. Define ΔG , ΔG_0 , $\Delta G'$, $\Delta G_0'$ [15]
4. Differentiate between:
 - (a) Animal fat and plant fat
 - (b) Hydrogenation and Halogenation reactions (with examples). [15]
5. Describe the chemical structure, properties and functions of nucleosides and nucleotides? [15]
6. Define non-protein amino acids and enumerate the significance of these proteins. [15]
7. Compare the energetics of Glycolysis leading to the production of Lactate and acetyl CoA. [15]
8. What is meant by stereospecific numbering. Write the structure of S glycerol-3-phosphate. [15]

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R09**Set No. 4**

II B.Tech I Semester Examinations, November 2010

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

Answer any FIVE Questions
All Questions carry equal marks

1. (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]
2. Describe in detail about nitrogen cycle with equations? [15]
3. Give an account on:
 - (a) Principle of Xanthoproteic reaction
 - (b) Acid- base properties of amino acid. [15]
4. Explain how Thermodynamically unfavorable reactions can be driven by favorable reaction. [15]
5. Pka of acetic acid is 4.8. What is the volume of 0.1M acetic acid and 0.05M sodium acetate required to prepare 1 litre of 0.05M buffer solution having a pH of 5.4. [15]
6. Describe briefly about the derived lipids? [15]
7. (a) Explain the significance of glycolysis and identify the energetically coupled reactions.
 (b) Write the structure of starch and why it does not show positive test with Benedict's. [15]
8. What are the steps involved in the biosynthesis of DNA? [15]

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R09**Set No. 1**

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

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What are epimers and write 2 epimers of D-Glucose.
 (b) Write about chirality axis. [15]
2. Write about:
 (a) Phospholipids
 (b) Cholesterol. [15]
3. Calculate the pH of a 1mM solution of
 (a) alanine hydrochloride
 (b) Isoelectric alanine
 (c) Sodium salt of alanine. [15]
4. Describe in detail the structure and functions of DNA and RNA? [15]
5. (a) What are reversible and irreversible processes?
 (b) ΔG^0 for a reaction $A \rightleftharpoons B$ is 10 kJ mol^{-1} . For the reaction to be thermodynamically favorable what should be the $[S]/[P]$ ratio. [15]
6. Write a short note on:
 (a) Haemoglobin as an allosteric proteins
 (b) Bohr effect involved in haemoglobin transport. [15]
7. Write the bypass steps of Gluconeogenesis and explain why Gluconeogenesis is not simple reversal of Glycolysis. [15]
8. Describe the structure and properties of the peptide bond. Write the tautomeric forms of peptide bond. [15]

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R09**Set No. 3**

II B.Tech I Semester Examinations, November 2010

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

Answer any FIVE Questions
All Questions carry equal marks

1. Write about:
 - (a) Isoelectric point
 - (b) Amino acids with hydroxyl group
 - (c) Imino acids. [15]
2. Write short notes on the following for carbohydrates
 - (a) Optical rotation and Specific rotation
 - (b) Mutarotation. [15]
3. Write about:
 - (a) Biological role of lipids
 - (b) Unsaturated fatty acids. [15]
4. Write short notes on:
 - (a) Denaturation and renaturation of DNA
 - (b) Different forms of DNA. [15]
5. (a) What is a Racemic mixture and how to identify it.
(b) Write about Stereospecificity. [15]
6. Explain the structure of water and its significance in the cell. [15]
7. Explain about
 - (a) Recycling of resident proteins
 - (b) Protein folding. [15]
8. Discuss the physical significance of thermodynamic properties in biological systems. [15]
