Open Book Examination January 2021

For January 2020 Batch

I Semester M.Sc. Biotechnology

BT 1.1 Biomolecules

Time: 3 Hours **Max. Marks: 80**

Instruction: *Answer all the sections.*

Section A

Answer any **FOUR** questions from the following **4 × 5 = 20**

1. Structure of maltose
2. Hetero-polysaccharide
3. Saponification number
4. Ramachandran plot
5. Glycolipids
6. Heparin

Section B

Answer any **THREE** questions from the following **3 × 10 = 30**

7. Explain the chemical reactions of glucose
8. Describe the determination of N- terminal amino acid of proteins
9. Write a note on α- helical structure of proteins.
10. Explain the pH titration of amino acids
11. Briefly explain denaturation and renaturation reactions of proteins

Section C

Answer any **TWO** questions from the following **2 × 15 = 30**

12. Explain and classify carbohydrates with suitable examples.
13. Explain the methodology of isolation of DNA and RNA from natural sources.
14. Give a detailed account of classification of lipids.
15. Discuss the folding of DNA and the forces responsible for supercoiling of DNA.

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BT 1.2: Biochemical Techniques

Time: 3 Hours **Max. Marks: 80**

Instruction: *Answer all the sections.*

Section A

Write a short note on any **FOUR** of the following **4 × 5 = 20**

1. GM counter
2. Differential gradient centrifugation
3. Isoelectric focussing
4. Ion exchange
5. GLC
6. Red-ox potential

Section B

Answer any **THREE** questions from the following **3 × 10 = 30**

7. Explain the safety measures in radiobiology laboratory.
8. Write a note on fluorescence and PAS staining.
9. Explain the principle and applications of paper chromatography
10. Discuss the importance of radioisotopes in Biology
11. Write a note on SDS-PAGE.

Section C

Answer any **TWO** questions from the following **2 × 15 = 30**

12. Discuss the instrumentation of preparative and analytical Ultra-centrifuge
13. Explain Beer-Lambert law and its limitations.
14. Write the principle and applications of agarose gel electrophoresis.
15. Describe the synthesis of isotopically labelled glucose

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I Semester M.Sc. Biotechnology

BT 1.3 Enzymology

Time : 3 Hours Max. Marks : 80

Instructions *: Answer all the sections.*

SECTION - A

Answer any FOUR Questions from the following: [4 X 5 = 20]

1) Irreversible type of enzyme inhibition.
2) Steady state approach for determining initial velocity of enzyme activity.
3) MWC model for Co-operativity.
4) Significance of Hill's equation.
5) Random sequential bisubstrate enzyme reaction.
6) Lineweaver-Burk plot.

SECTION – B

Answer any THREE questions from the following: [3 X 10 = 30]

7) Write the applications of enzymes in clinical diagnosis
8) Explain reversible type of enzyme inhibitions and write the fate of Km and Vmax.
9) Explain the structure and allostericity of ATCase.
10) Give an account of Lactate dehydrogenase as Isoenzyme.
11) Write an account on Restriction endonucleases.

SECTION - C

Answer any TWO questions from the following: [2 x 15 = 30]

12) Write in detail the Industrial applications of enzymes.
13) Explain in detail the six major classes of enzymes
14) Discuss Fattyacid synthase as a multienzyme complex.
15) Explain the applications of immobilized enzymes.

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Open Book Examination January 2021

For January 2020 Batch

I Semester M.Sc. Biotechnology

BT 1.4 Biochemical Transformation and Clinical significance

Time: 3 Hours **Max. Marks: 80**

Instruction: *Answer all the sections.*

Section A

Answer any **FOUR** questions from the following **4 × 5 = 20**

1. Galactose urea and fructose urea
2. Light harvesting antennae complex
3. Paroxysomal β -oxidation
4. Nucleotide synthesis by salvage pathway
5. ATP synthase complex
6. Gout

Section B

Answer any **THREE** questions from the following **3 × 10 = 30**

7. Write a note on Glycogen metabolism
8. Explain the mechanism of ATP synthesis
9. Briefly explain biosynthesis of phospholipids
10. Write a note on inherited diseases of proteins
11. Give a brief account on degradation of pyrimidines

Section C

Answer any **TWO** questions from the following **2 × 15 = 30**

12. Explain in detail about the components of electron transport chain.
13. Describe the chemistry and structural components of photo system I
14. Give an account on Cholesterol biosynthesis and its regulation
15. Explain the biosynthesis and degradation of nucleotides.

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