

Uttar Pradesh Rajarshi Tandon Open University

Science Postgraduate Programme (Biochemistry) Assignment Session 2021-22

Course Code: PGBCH-101	Course Title: Cell Biology & Biomolecules	Maximum Marks : 30
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Section 'A'

Long answer questions

Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

- Q.1:** How biochemistry is the life of matter. Discuss its role in our daily life.
- Q.2:** Define the role of mitochondria. How it plays a role in energy generation.
- Q.3:** What are disaccharides? Discuss the energy production in human body.

Section - B

Short answer questions

Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words.

- Q.1:** Discuss the factors that influence the denaturation of DNA.
- Q.2:** Discuss the role of lipids in human body. Write their functions with suitable example.
- Q.3:** Who discovered the structure of double stranded DNA? Explain with suitable example.
- Q.4:** Discuss the role of hemoglobin in human body. How is hemoglobin useful in the process of respiration.

Uttar Pradesh Rajarshi Tandon Open University

Science Postgraduate Programme (Biochemistry) Assignment Session 2021-22

Course Code: PGBCH-102	Course Title: Analytical Biochemistry	Maximum Marks : 30
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Section 'A'

Long answer questions

Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. What is spectroscopy? Discuss about absorption spectroscopy
2. What do you understand by electrophoresis? How it is useful in separation of macromolecules.
3. Define the role of HPLC in bioanalytical techniques? Explain principle and applications of thin layer Chromatography.

Section - B

Short Answer Questions

Maximum marks: 12

Note: Write answer of four questions in 200 to 300 Words.

1. What do understand by electromagnetic waves?
2. Discuss gel HPLC and its applications.
3. What is the difference between atomic and molecular spectroscopy.
4. Write short notes on:
 - a) Isoelectric focusing
 - b) ^{13}C NMR
 - c) Thin layer Chromatography
 - d) Auxochromophore

Uttar Pradesh Rajarshi Tandon Open University

Science Postgraduate Programme (Biochemistry) Assignment Session 2021-22

Course Code: PGBCH-103	Course Title : Bioenergetics & Metabolism	Maximum Marks : 30
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Section 'A'

Long answer questions

Maximum marks: 18

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

- Q.1:** What is the photosynthesis; define the light reaction in briefly.
- Q.2:** Discuss briefly how the TCA is form in metabolism of carbohydrate
- Q.3:** What is Prosthetic group? Write the functions of a prosthetic group.

Section - B

Short Answer Questions

Maximum marks: 12

Note: Write four questions in 200 to 300 words.

- Q.1:** What are proteins? Is the every enzyme are made up from protein.
- Q.2:** Define the role of enzyme in metabolism.
- Q.3:** Discuss the formation of glucose in metabolic process.
- Q.4:** Write shot notes on products and reactants of cellular respiration

Uttar Pradesh Rajarshi Tandon Open University

Science Postgraduate Programme (Biochemistry) Assignment Session 2021-22

Course Code: PGBCH-105	Course Title: Nutrition and physiology	Maximum Marks : 30
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Section 'A'

Long answer questions

Maximum marks: 18

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.1: How nutrients are useful in our body? Different types of macromolecules used as a source of nutrients.

Q.2: What do you understand by malnutrition, discuss the effects of over nutrition in human body

Q.3: What is Basal metabolic rate? Discuss the basic concept of metabolic rate.

Section - B

Short Answer Questions

Maximum marks: 12

Note: Write answer of four questions in 200 to 300 words.

Q.1: Describe the digestion and absorption of dietary proteins.

Q.2: Discuss the source of dietary carbohydrates.

Q.3: Describe the measurement of calorific value of food

Q.4: Write short notes

- a) Trace Elements
- b) Water soluble vitamin
- c) Define the role of red blood cells
- d) Calorific value

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Science Postgraduate Programme (Biochemistry) Assignment Session 2021-22

Course Code: PGBCH-106	Course Title : Biostatistics	Maximum Marks : 30
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Section 'A'

Long answer questions

Maximum marks: 12

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.1: What do you mean by the hypothesis in research methodology, Define the limitation of tests of hypothesis?

Q.2: What is research problem? Selecting the problem, necessity of and techniques in defining the problem?

Q.3: What do you mean by research methods? Define the historical research methodology?

Section - B

Short answer questions

Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words.

Q.1: Write the short notes on analysis of variance and co-variance.

Q.2: Define the central tendency.

Q.3: Define the objectives of research.

Q.4: What do you understand by research and scientific methods?

Q.5: Write the principle of sampling.

Uttar Pradesh Rajarshi Tandon Open University

Science Postgraduate Programme (Biochemistry) Assignment Session 2021-22

Course Code: PGBCH-107	Course Title: Clinical Biochemistry	Maximum Marks : 30
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Section 'A'

Long answer questions

Maximum marks: 12

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

- Q.1:** Outline role of clinical biochemistry Laboratory analysis in assessment of health status of a human being.
- Q.2:** Describe role of polymerase chain reaction in diagnosis of diseases.
- Q.3:** Discuss terms precision, sensitivity and specificity in biochemical estimations giving examples.

Section - B

Short answer questions

Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words.

- Q.1:** How do you differentiate between NIDDM and IDDM?
- Q.2:** Discuss the liver functions tests and their importance.
- Q.3:** Define the Labour errors of metabolism.
- Q.4:** Write the short notes on
- a. Digestion
 - b. Electrolyte Metabolism
 - c. Plasma Proteins
 - d. Immunoglobins

Uttar Pradesh Rajarshi Tandon Open University

Science Postgraduate Programme (Biochemistry) Assignment Session 2021-22

Course Code: PGBCH-109	Course Title: Enzymology and Enzyme Technology	Maximum Marks : 30
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Section A

Long Answer Questions

Maximum marks: 12

Note: Attempt all questions. Each question should be answered in 800 to 1000 words.

- Q.1.** What are the enzymes? Classify different enzymes with their properties and specificity.
- Q.2.** Discuss various enzyme mechanisms.
- Q.3.** Write short notes on the following.
- Isozymes
 - Allosteric enzymes
 - Enzyme immobilization

Section B

(Short Answer Questions)

Maximum marks: 12

Note: Attempt all questions. Each question should be answered in 200 to 300 words.

- Q.1.** Explain enzyme inhibition.
- Q.2.** Describe enzyme kinetics.
- Q.3.** Discuss the applications of enzymes in food industry.
- Q.4.** Explain Michaelis- Menten equation.

Uttar Pradesh Rajarshi Tandon Open University

Science Postgraduate Programme (Biochemistry) Assignment Session 2021-22

Course Code: PGBCH-110	Course Title: Immunology	Maximum Marks : 30
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Section A

Long Answer Questions

Maximum marks: 18

Note: Attempt all questions. Each question should be answered in 800 to 1000 words.

Q.1. Describe the classification, types and functions of Antibodies.

Q.2. Differentiate between innate and adaptive immunity. Explain components of innate immunity.

Q.3. Write the short notes on the following.

- a) Haptens
- b) Vaccines
- c) Secretory antibody

Section B

Short Answer Questions

Maximum marks: 12

Note: Attempt all questions. Each question should be answered in 200 to 300 words.

Q.1. Explain the acquired immunodeficiency.

Q.2. Explain the structure and functions of antibody.

Q.3. Write the notes on radio-immunoassay (RIA).

Q.4. Explain the cell mediated immune response.

Uttar Pradesh Rajarshi Tandon Open University

Science Postgraduate Programme (Biochemistry) Assignment Session 2021-22

Course Code: PGBCH-111	Course Title: Basic biotechnology	Maximum Marks : 30
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Section A

Long Answer Questions

Maximum marks: 18

Note: Attempt all questions. Each question should be answered in 800 to 1000 words.

- Q.1.** Define, scope and importance of Biotechnology. Write useful products of biotechnology.
- Q.2.** Describe the concept of recombinant DNA technology (RDT).
- Q.3.** Write short notes on the following.
- GM (Genetically modified) foods.
 - Polymerase chain reaction (PCR)
 - Gene Cloning

Section B

Short Answer Questions

Maximum marks: 12

Note: Attempt all questions. Each question should be answered in 200 to 300 words.

- Q.1.** Write a note on gene transfer method in plants.
- Q.2.** Explain the role of biotechnology to improve yield and nutritional values of crops.
- Q.3.** Explain the role of biotechnology in pollutants remediation (air, water and soil).
- Q.4.** Explain the transgenic animals.

Uttar Pradesh Rajarshi Tandon Open University

Science Postgraduate Programme (Biochemistry) Assignment Session 2021-22

Course Code: PGBCH-113	Course Title: Industrial biotechnology	Maximum Marks : 30
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Section A

Long Answer Questions

Maximum marks: 18

Note: Attempt all questions. Each question should be answered in 800 to 1000 words.

Q.1. Describe different enzymes with their general properties.

Q.2. Write short notes on the following.

- a) Fermentation.
- b) Centrifugation
- c) Chromatography

Q.3. What do you mean by fermentation? Describe different types of fermentation process.

Section B

Short Answer Questions

Maximum marks: 12

Note: Attempt all questions. Each question should be answered in 200 to 300 words.

Q.1. What are the roles of micro elements in industrial process?

Q.2. Write short notes on the following.

- a) Sterilization.
- b) Pasteurization

Q.3. Write a short note on enzymes used in baking and pharmaceutical industry.

Q.4. Write a short note on bioreactor.

Uttar Pradesh Rajarshi Tandon Open University

Science Postgraduate Programme (Biochemistry) Assignment Session 2021-22

Course Code: PGBCH-115	Course Title: Biosafety and IPR	Maximum Marks : 30
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Section 'A'

Long answer questions
marks: 18

Maximum

Note:All questions are compulsory. Each question should be answered in 800 to 1000 Words.

Q.1. Describe genetically modified foods (GMF).

Q.2. What do you mean by patent, intellectual property right (IPR) and international agreement?

Q.3. Write short notes on the following

- a) Eco-labeling
- b) Ecomark
- c) GMO

Section B

Short Answer Questions

Maximum marks: 12

Note: Attempt all questions. Each question should be answered in 200 to 300 words.

Q.1. Explain Cartagena protocol on biosafety.

Q.2. Write short notes on the following.

- a) Antibiotic resistance.
- b) Gene flow

Q.3. Explain benefits of transgenic to human health, society and the environment.

Q.4. Explain convention on biological diversity.

Uttar Pradesh Rajarshi Tandon Open University

Science Postgraduate Programme (Biochemistry) Assignment Session 2021-22

Course Code: PGBCH-116	Course Title: Bioinformatics	Maximum Marks : 30
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Section 'A'

Long answer questions

Maximum marks: 12

Note: All questions are compulsory. Each question should be answered in 800 to 1000 Words.

- Q.1.** Discuss the importance of bioinformatics studies in modern biology.
- Q.2.** Describe the aim of bioinformatics and its scopes.
- Q.3.** Write short notes on the following.
- (a) SCOP
 - (b) BLAST
 - (c) NCBI

Section B

Short Answer Questions

Maximum marks: 12

Note: Attempt all questions. Each question should be answered in 200 to 300 words.

- Q.1.** Explain the protein 3D structure and its data base.
- Q.2.** Explain the classification scheme of biological databases.
- Q.3.** Discuss the recourses of EMBL.
- Q.4.** Explain the protein data bank.

Uttar Pradesh Rajarshi Tandon Open University

Science Postgraduate Programme (Biochemistry) Assignment Session 2021-22

Course Code: PGBCH-117	Course Title: Microbiology and Toxicology	Maximum Marks : 30
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Section A

Long Answer Questions

Maximum marks: 18

Note: Attempt all questions. Each question should be answered in 800 to 1000 words.

- Q.1.** What do you mean by antibiotics? Explain with examples.
- Q.2.** Write short notes on the following.
- Antibiotics
 - Culture media
 - Food borne diseases
- Q.3.** Describe AIDS (Acquired immunodeficiency syndrome) in detail.

Section B

(Short Answer Questions)

Note: Attempt all questions. Each question should be answered in 200 to 300 words.

Maximum marks: 12

- Q.1.** Write the role of microbes in ecosystem.
- Q.2.** Differentiate the following.
- Primary and secondary immune response.
 - Gram +ive and gram –ive bacteria
- Q.3.** Discuss the xenobiotic compounds with examples.
- Q.4.** Explain the significance of major histo-compatibility complex (MHC).