F–9424	Sub. Code
	7MBC1C1

M.Sc. DEGREE EXAMINATION, APRIL 2023.

First Semester

Biochemistry

CHEMISTRY OF BIOMOLECULES

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is the Mass Number?

2. What is the difference between Molarity and Molality?

3. What are polysaccharides? Give any one examples.

4. What are disaccharides? Give any two examples

5. What are lipoproteins?

6. Write the classification of proteins

7. Write two characteristics of fats.

8. Define the property of phospholipids

9. Draw the structure of Nucleotide

10. Define the Chargaff's rule.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) What are the four laws of thermodynamics?

Or

(b) Explain in detail on Non covalent bonds

12. (a) What are the functions of Carbohydrates? Explain in detail.

Or

(b) Briefly explain the properties of structural polysaccharides.

13. (a) Explain the chemical synthesis of polypeptides.

Or

(b) Explain the various functions of proteins.

14. (a) Explain the uses of glycerophospholipid

Or

(b) Explain the biological importance of sphingomyelins

15. (a) Explain the properties of DNA

Or

(b) Explain the structure and characteristics of tRNA.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain: Molarity, Molality, Normality; Mole Fractions.

17. Explain with illustrations on bacterial cell wall polysaccharides

18. Explain the process of denaturation and Renaturation of proteins.

19. Elaborate on physical and chemical properties of triacylglycerols

20. Give a detailed note on the structure and properties of DNA.

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F–9425

Sub. Code
7MBC2C1

M.Sc. DEGREE EXAMINATION, APRIL 2023

Second Semester

Biochemistry

CELL BIOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What are the types of liposomes?

2. What are ATP dependent pumps?

3. What is the main function of golgi complex?

4. Differentiate between endocytosis and exocytosis.

5. What are anucleated cells? Give one example in mammals.

6. What is G-banding?

7. What is metaphase?

8. What are the different phases of cell cycle?

9. Which apoptotic pathway is called as mitochondrial pathway? Give the reason.

10. What is the role of somatic evolution in causing cancer?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a note on the functions of cytoskeleton.

Or

(b) Explain the significance of the proteins present in membrane.

12. (a) Give a detailed note on the different steps of photosynthesis.

Or

(b) Write a note on the functions of the different enzymes present in lysosomes.

13. (a) Discuss in detail on the oxidative reactions which occur in microsomes.

Or

(b) Discuss on the major functions of nucleosome.

14. (a) Write elaborately on the different phases and functions of meiosis.

Or

(b) Elaborate on the applications of cell fusion.

15. (a) Write a note on the signalling cascade which involves MAP kinase.

Or

(b) What are chemical carcinogens? Explain the mechanisms by which it induces cancer.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the neurotransmission process and elaborate on the different types of neurotransmitters.

17. Discuss in detail on the structure and biogenesis of mitochondria.

18. Explain the salient features of polytene and lampbrush chromosome.

19. Give a detailed note on the structural organization and functions of proteasome.

20. Explain the process by which normal cell is transformed to a tumour cell.

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F–9426	Sub. Code
	7MBC2C2

M.Sc. DEGREE EXAMINATION, APRIL 2023.

Second Semester

Biochemistry

MICROBIOLOGY AND IMMUNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

SECTION A (10 × 2 = 20)

Answer **all** questions.

1. Differentiate enriched and enrichment media.

2. Define Archea

3. What is coenocytic mycelium?

4. List the discriminative characters of viruses.

5. What is opsonisation?

6. What are complement proteins?

7. Mention the role of antigen presenting cells.

8. What is secondary response in immunity?

9. What is Human Leucocyte Antigen mapping.

10. What is tumour antigen?

SECTION B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the nutritional requirements met among microorganisms.

Or

(b) Give a brief account on continuous culture.

12. (a) Enumerate the economic importance of algae.

Or

(b) With a neat sketch explain the morphological characters of amoeba.

13. (a) Explain the structure and importance of bone marrow.

Or

(b) Differentiate between hapten and epitope.

14. (a) Enumerate the properties of cytokines.

Or

(b) Give an account of immunosupressors.

15. (a) Illustrate the mechanism of graft vs host rejection.

Or

(b) Bring out the pathogenicity and treatment methods of AIDS.

SECTION C (3 × 10 = 30)

Answer any **three** questions.

16. Discuss the structure and composition of bacterial cell wall.

17. Illustrate the lytic and lysogenic cycle of bacteriophage.

18. Describe the structure and types of antibodies.

19. Elaborate on the various innate defence mechanisms.

20. Enlight in detail the classification of hypersensitivity.

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F–9430	Sub. Code
	7MBC3C1

M.Sc. DEGREE EXAMINATION, APRIL 2023.

Third Semester

Biochemistry

GENE EXPRESSION AND METABOLIC REGULATION

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are promoter genes?
2. Define Antagonist
3. Draw the structure of any one membrane receptor
4. Define Signal Transduction
5. ATP/ADP ratio – Explain
6. Define Feed back regulation
7. What are essential amino acids?
8. What are adipose tissues?
9. What are purines and pyrimidenis?
10. Define hyperuricemia.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a note on Arabinose operon

Or

(b) Give a brief account on Repressor genes with neat illustrations.

12. (a) Write short notes on the role of hormones in electrolyte metabolism

Or

(b) Discuss briefly about the characteristics of secondary messangers.

13. (a) Write a note on Gluconeogenesis

Or

(b) Give a brief note on metabolism of fructose

14. (a) Explain briefly about Urea Cycle

Or

(b) Write a note on Temperature control of human body.

15. (a) Write short notes on the role of acetyl – CoA in nucleotide metabolism.

Or

(b) Explain briefly about regulation of nucleotide production.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Elaborate on post – transcriptional gene silencing by RNAi Technology.

17. Explain in detail about Receptor Tyrosine Kinases

18. Discuss in detail about the enzymes involved in Carbohydrates metabolism.

19. Explain in detail about β - oxidation in Fatty acid Metabolism.

20. Write in detail about catabolism of purines and pyrimidines.

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F–9431

Sub. Code
7MBC3C2

M.Sc. DEGREE EXAMINATION, APRIL 2023

Third Semester

Biochemistry

MEDICAL BIOCHEMISTRY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are isoenzymes? Give two examples.
2. How will you represent mg/dL and g/dL in SI unit?
3. What is multiple myeloma?
4. What is hypergammaglobulinemia?
5. What is glycosuria?
6. What is the treatment available for lactose intolerance?
7. What are the symptoms of ketosis?
8. What are the clinical conditions in which the urine porphyrins increase?
9. What is hepatic encephalopathy?
10. What is the clinical reason for high ESR?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Which enzyme is used for diagnosis of heart failure?

Or

(b) Write the importance of quality control in a clinical laboratory.

12. (a) Explain the methods for diagnosis of gout.

Or

(b) List out some of the diseases caused due to protein deficiency.

13. (a) Write a note on the mechanism of action of any two hypoglycemic agent.

Or

(b) Elaborate on the pathology of atherosclerosis.

14. (a) Explain the importance of renal function test.

Or

(b) Write a detailed note on urine sediment analysis.

15. (a) Is the C-Reactive Protein analysed for assessing cardiovascular risk? Justify.

Or

(b) Write a note on the diagnostic test for rheumatoid arthritis.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the significance of laboratory automation.

17. Write a note on the disorders of amino acid metabolism.

18. Explain the various secondary degenerative changes which are associated with diabetes mellitus.

19. How does high blood pressure affect the functions of kidneys? Explain.

20. Explain the characteristics of CSF in meningitis and thrombosis.

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