S–3235

Sub. Code
23MBC1C1

M.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Biochemistry

BASICS OF BIOCHEMISTRY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write short note on Health benefits of Inulin.
2. Add a note on the function of peptidoglycan.
3. What is lipoprotein and its function?
4. Define Glycolipid.
5. Write a brief note on Ramchandran plot?
6. What are peptides and what are they used for?
7. Define actin filaments.
8. What is the cytoskeleton?
9. Where is mt DNA found?
10. What is the 4^{th} type of RNA in a cell?

Part B (5 × 5 = 25)

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

11. (a) Describe the five properties of starch.

Or

(b) Write a note on composition of Bacterial cell wall.

12. (a) Give an idea of classification of Lipoprotein.

Or

(b) Write a detailed note on function of Lipoprotein.

13. (a) Describe the key properties of Amino acids.

Or

(b) Explain the structure and function of hemoglobin.

14. (a) Give a detailed account on structure and function of cytoskeleton.

Or

(b) Describe key features of fluid mosaic model.

15. (a) What is the function of the mitochondrial DNA?

Or

(b) Describe the structure, functions and types of RNA.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe the structure and function of starch and glycogen.

17. Write a note on Lipoprotein – Explanation. Different forms and significance.

18. Briefly discuss the protein : – Primary and secondary structure.

19. Describe the fluid mosaic model of plasma membrane.

20. Write a detailed note on Double Helix structure of DNA.

S–3236

Sub. Code
23MBC1C2

M.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Biochemistry

BIOCHEMICAL AND MOLECULAR BIOLOGY TECHNIQUES

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define cell counting.
2. Mention the General principles of Electron microscope.
3. Give the principles of chromatography.
4. Define: Rf value.
5. State the Electrophoresis technique.
6. Write about the SDS-PAGE.
7. State Beer-Lamberts law.
8. Write about the Luciferase system.
9. Define Radioactivity.
10. What are the Radioisotopes in biology?

Part B (5 × 5 = 25)

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

11. (a) Give a brief account on cell culture technique.

Or

(b) Write short notes on phase contrast microscope.

12. (a) Give short notes on Affinity chromatography.

Or

(b) Explain briefly about the column chromatography.

13. (a) Write down the factors affecting Electrophoresis technique.

Or

(b) Give short notes on silver staining method.

14. (a) Write short notes on NMR.

Or

(b) Explain briefly about the XRD.

15. (a) Write down the measurement of Radioactivity.

Or

(b) Give the uses of Radioisotopes in Biological studies.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write a detail note on the principle and applications of light microscope.

17. Elaborate the principle, Instrumentation and application of Gas liquid chromatography.

18. Explain in detail about the principle and steps involved in SDS-PAGE.

19. Write in detail about the Instrumentation of UV-visible spectroscopy and its applications.

20. Give a detail account about the biological Hazards of Radiction and safety measures.

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S–3237

Sub. Code
23MBC1C3

M.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Biochemistry

PHYSIOLOGY AND CELL BIOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Mention the types of Tissues.

2. Define cell cycle.

3. Write about the Acrosome formation.

4. Define : Infertility.

5. Write a short note on Bile salts.

6. What are the Blood Groups?

7. Define Homeostasis.

8. Write about the Acidosis.

9. Define Neuro transmitter.

10. What are Gonadal Hormones?

Part B (5 × 5 = 25)

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

11. (a) Write briefly about the cell junctions.

Or

(b) Write short notes on Epithelium structure.

12. (a) Explain briefly about the sperm transport.

Or

(b) Write short notes on semen.

13. (a) Explain briefly about the HCl formation in stomach.

Or

(b) Give short notes on composition of Blood.

14. (a) Write down the Gases transport mechanism.

Or

(b) Write short notes on Bohr effect.

15. (a) Explain briefly about the Nerve cells.

Or

(b) Write briefly about the classification of Hormones.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write a detail note on the Mitosis cycle and its Importance.

17. Write in detail about the infertility issues and societal relevance.

18. Elaborate the Digestion of Carbohydrates tipids and proteins.

19. Write in detail about the Neuro transmission and its Importance.

20. Give a detail account the posterior secretion of pituitary Hormones and its Importance.

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S–3238

Sub. Code
23MBC1E1

M.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Biochemistry

Elective — MICROBIOLOGY AND IMMUNOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define lysogeny.

2. What are the tour culture media?

3. Define : Food spoilage.

4. Food preservation.

5. Comment on clostridium.

6. Define: Aflotoxin.

7. Comment on sulphones.

8. Chemotherophy.

9. Define HLA antigens.

10. What is neutrophils?

Part B (5 × 5 = 25)

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

11. (a) Explain the microbial growth curve, measurement.

Or

(b) Write a notes on viruses (DNA/RNA).

12. (a) Detailed comment on the Ragi porridge.

Or

(b) Explain in detail about irradiation.

13. (a) Explain about fungi food poisoning.

Or

(b) Write about the dye reduction method.

14. (a) Give account on Antiviral RNA interference.

Or

(b) Explain in detail about antimicrobial drugs.

15. (a) Detailed comment on lymphocytes.

Or

(b) Write about the classes of antibodies.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Give an account on the taxonomical classification of bacteria.

17. Describe about the modern method of food preservation.

18. Explain about ten main reason for food poisoning.

19. Explain in detail the penicillin mechanian of action.

20. Explain about the complement system and it's importance.

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S–3239

Sub. Code
23MBC2C1

M.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Biochemistry

ENZYMOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Who gave the name enzyme?
2. Define active site of an enzyme.
3. What are isoenzymes?
4. Define Katal.
5. Note on the significance of Kcat/Km value.
6. State the transition. State theory.
7. What are allosteric enzymes?
8. Define the ping-pong mechanism.
9. List out the industrial applications of lipase.
10. What do you mean by irreversible immobilization?

Part B (5 × 5 = 25)

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

11. (a) How will you classify enzymes? Explain briefly.

Or

(b) Write short notes on the mechanism of enzyme catalysis.

12. (a) Write short notes on the measurement of enzyme activity.

Or

(b) Briefly discuss about the importance of purification of enzymes.

13. (a) Explain Michaelis. Mention equation briefly.

Or

(b) What is activation energy? Explain briefly.

14. (a) Differentiate SDR from DDR.

Or

(b) Discuss briefly about bi-substrate reaction.

15. (a) List out the applications of enzymes as therapeutic agents.

Or

(b) Mention the properties of immobilized enzymes in short.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Enzymes are the powerful tools in biochemistry. Explain in detail.

17. Discuss in detail the various methodologies adopted to purify enzymes.

18. Explain in detail about enzyme inhibition.

19. Elaborate on allosteric enzyme.

20. How will you immobilize the enzyme? Give a detailed note.

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S–3240	Sub. Code 23MBC2C2

M.Sc. DEGREE EXAMINATION, APRIL 2024.

Second Semester

Biochemistry

CELLULAR METABOLISM

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define chondroitin sulphate.
2. State any two significations of HMP shunt pathway.
3. What is gluconeogenesis?
4. Define alpha oxidation of fatty acid.
5. Give two examples for glycogenic amino acid.
6. Tell about Rhodanases.
7. What is the degradative product of purine nucleotide?
8. What is meant by Maroteaux-Lancy syndrome?
9. Name the Ketone bodies.
10. How many molecules of ATP are produced in TCA cycle?

Part B (5 × 5 = 25)

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

11. (a) Briefly explain the feeder pathway.

Or

(b) Write short notes on pentose phosphate pathway and their regulation.

12. (a) Describe the biosynthesis of prostaglandins.

Or

(b) Write the steps involved in biosynthesis of Lecithin.

13. (a) Write short notes on degradation pathway of pyrinidine nucleotide.

Or

(b) Describe the salvage pathway of purine nucleotide.

14. (a) Explain the degradation ketogenic amino acid.

Or

(b) Briefly write about spermine Biosynthesis.

15. (a) Write a short note on biosynthesis of heme.

Or

(b) Describe briefly about Mucopolysaccharides.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe the gluconeogenesis.

17. Write an essay on beta oxidation of fatty acids and its regulations.

18. Discuss the regulation and inhibitors of nucleotide biosynthesis.

19. Write short notes on biosynthesis of non-essential amino acid.

20. Give an account on Jaundice.

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S–3241	Sub. Code
	23MBC2C3

M.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Biochemistry

CLINICAL BIOCHEMISTRY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is amniotic fluid?
2. Note on hemophilia.
3. Define atherosclerosis.
4. List out the anti – diabetic drugs.
5. Mention the clinical significance of ALP.
6. What is cystic fibrosis?
7. What are cytokines?
8. What is haptoglobin?
9. Define Cushing's syndrome.
10. What is nephrocalcinosis?

Part B (5 × 5 = 25)

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

11. (a) How will you prescribe the CSF? Explain briefly.

Or

(b) Write short notes on the procedures adopted for collecting blood samples.

12. (a) Explain in short about GTT curve.

Or

(b) Discuss in short about the markers of complications of Diabetes Mellitus.

13. (a) Describe the various types of tumor markers.

Or

(b) List out the enzymes used as therapeutic agents.

14. (a) Exemplify the acute phase proteins.

Or

(b) Discuss the plasma protein changes in liver diseases.

15. (a) Describe dialysis briefly.

Or

(b) Mention the various disorders associated with pituitary gland.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss in detail the various types of disorders of blood cell.

17. Describe the complications of diabetes mellitus.

18. What are clinically important enzymes. Explain in detail.

19. Elaborate on liver function test.

20. Discuss in detail about various hormonal disorders.

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S–3242	Sub. Code
	23MBC2E1

M.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Biochemistry

Elective – ENERGY AND DRUG METABOLISM

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define thermodynamics.
2. What is free energy?
3. What is mean by alpha oxidation of fatty acids?
4. Comment on ATP synthesis.
5. Write about the Q-Cycle.
6. Define : Hills reaction.
7. Photorespiration.
8. What is the Beta oxidation?
9. Comment on PAPS.
10. Write about phase I reactions.

Part B (5 × 5 = 25)

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

11. (a) List out the various inhibitors of Electron transport chain.

Or

(b) Analyse the significance of malate asparate shuffle.

12. (a) Explain in detail role of FO-FI Atpage.

Or

(b) Describe the chemiosmotic theory.

13. (a) Examine the non-cyclic electron Flow.

Or

(b) Write about the photochemical event.

14. (a) Explain about the citric acid cycle.

Or

(b) Write about major food staffs.

15. (a) Detailed comment on process of APS.

Or

(b) Describe the role of SAM.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Elaborate the mechanisms of Electron transport chain.

17. Discuss in detail regulation of oxidative phosphorylation.

18. Discuss in detail light reactions.

19. Explain in detail on TCA cycle.

20. Describe about the phase II reactions.

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S–3243

Sub. Code
23MBC2E2

M.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Biochemistry

Elective – NUTRITIONAL BIOCHEMISTRY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is a Balanced Diet?

2. Define good BMR rate.

3. Enumerate the ten essential amino acid?

4. What are carbohydrates foods explain?

5. Describe the potential health benefit of vitamin B complex?

6. List out the best sources of Iron.

7. Define steaming.

8. What are three vitamin deficiency diseases?

9. How do you deal with covid – 19 pandemic?

10. Obesity: What is it, and what causes it?

Part B $(5 \times 5 = 25)$

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

11. (a) What are the Basic food Groups?

Or

(b) Add a note basic sports Nutrition.

12. (a) What are the sources of complex carbohydrates?

Or

(b) Give a critical account on macronutrient.

13. (a) Describe the best foods for vitamins and minerals.

Or

(b) Briefly describe the Nutritional importance of iron.

14. (a) What are the five symptoms of kwashiorkar?

Or

(b) Vitamin A deficiency: Causes, symptoms.

15. (a) Aetiology – Definition, Meaning and synonyms.

Or

(b) What is the fastest way to recover from Jaundice?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Balanced Diet – Definition, importance, Benefits and Diet chart.

17. What are plant and animal source of carbohydrates?

18. Give a detailed account on vitamin and mineral types sources and their functions.

19. Malnutrition: Definition, Causes, Symptoms and Treatment.

20. Briefly describe about Coronavirus and COVID–19 – symptoms, causes, Treatment.

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S–3244	Sub. Code
	23MBC2S1

M.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Biochemistry

FUNDAMENTAL OF MEDICAL LABORATORY TECHNOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define clinic borne infection.
2. Define Microscope.
3. What is meant by Anticoagulants?
4. What is buffer?
5. Tell the steps of Batch analyzer.
6. Define pH.
7. What is danger signs?
8. List the laboratory safety measures.
9. What is light microscope?
10. Define phlebotomy.

Part B (5 × 5 = 25)

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

11. (a) Discuss the role of medical laboratory technician.

Or

(b) Give a brief note on clinic borne infection and personnel hygiene.

12. (a) Describe briefly about electron microscopy.

Or

(b) Write a note on hot air oven.

13. (a) Explain the requirement of Blood collection.

Or

(b) Write an essay on laboratory report.

14. (a) Discuss on briefly about auto analyzer.

Or

(b) Explain the preparation of reagents.

15. (a) Describe the laboratory disposal method.

Or

(b) Explain the steps in automated system.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an essay on safety measures in both clinical and medical laboratory.

17. Describe briefly about fundamentals resolution and magnification of microscope.

18. Explain briefly process of analysing the specimens.

19. Give a brief note on Quality control Accuracy.

20. Write an essay on the use of chemical and their interaction, danger signs production techniques.

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