S–2756

Sub. Code
23BMC1C1

B.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Microbiology and Clinical Lab Technology

CELL BIOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Cell theory.
2. Bacterial cell.
3. Exocytosis.
4. Microtubules.
5. Endoplasmic reticulum.
6. Nuclear membrane.
7. Mitosis.
8. Stem cells.
9. Cell surface Receptors.
10. AMP.

Part B (5 × 5 = 25)

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

11. (a) Write about protoplasm.

Or

(b) Explain about Arche bacterial cell.

12. (a) Describe about structure of plant cell wall.

Or

(b) State about process of endocytosis.

13. (a) Illustrate about structure of Golgi apparatus.

Or

(b) Discuss about photophosphorylation.

14. (a) Comment on Eukaryotic cell cycle and its regulation.

Or

(b) Write short note causes of cancer.

15. (a) Write about cell signaling and mention its types.

Or

(b) Explain about functions of cell surface receptors.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an difference between prokaryotic and eukaryotic cell.

17. Give a brief account on importance in membrane transport.

18. Disucss about organization of chromosomes.

19. Describe in detailed account on cell-renewal.

20. Add brief account on any one pathway of Intracellular receptors.

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S–2757

Sub. Code
23BMCA1

B.Sc. DEGREE EXAMINATION, APRIL 2024

Microbiology and Clinical Lab Technology

Allied – BODY FLUID ANALYSIS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Blood
2. Interstitial compartment
3. Alpha fetoprotein
4. Gestation age
5. Gross examination
6. Synovial fluid
7. Haemogram
8. MCH
9. Waived tests
10. Automated tests

Part B (5 × 5 = 25)

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

11. (a) Write an account on functions of Lymph.

Or

(b) Mention about clinical abnormalities of fluid volume.

12. (a) Critically common on the formation of amniotic fluid.

Or

(b) Give you views on haemolytic diseases.

13. (a) Discuss in brief about chemical analysis of cerebrospinal fluid.

Or

(b) Illustrate in short about clinical importance of Serous fluid.

14. (a) Define in detail note on mechanism of blood coagulation.

Or

(b) Briefly explain about significance of Lupus erythematosus.

15. (a) Add an account on principle of Low complexity tests.

Or

(b) How could you prepare reports for high complexity tests.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Narrate a detail account on various solutes present in bodyfluids and mention its functions.

17. Describe in brief about impacts of chromosomal abnormalities.

18. List out different microbiological tests adopted for CSF.

19. How can you calculate anaemia using MCHC? Mention its application.

20. Give outline views on basic techniques involved moderate complexity tests.

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S–2758	Sub. Code
	23BMC1S1

B.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Microbiology and Clinical Lab Technology

SKILLS IN MICROBIOLOGY AND CLINICAL LABORATORY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Decontamination
2. Pressure cooker
3. Toxigenicity
4. Carriers
5. Blood
6. Diabetes
7. Antimicrobial drugs
8. Killed vaccine
9. ECG
10. Autoanalyser

Part B (5 × 5 = 25)

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

11. (a) List out different types of sterilization.

Or

(b) Write an account on working principle of Hot air oven.

12. (a) Differentiate pathogenicity and virulence with suitable examples.

Or

(b) Give short notes on transmission of infections.

13. (a) Mention different methods of sample collections.

Or

(b) Illustrate in brief about advantages of Haemoglobinometer.

14. (a) Define in brief account on types of antibiotics.

Or

(b) Briefly explain about needs of vaccines and mention about vaccination schedule.

15. (a) Add an account on importance of MRI scan.

Or

(b) Critically comment on mamography.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. How can you maintain microbial cultures for a long time?

17. Discuss in brief account on important factors for host pathogen interaction.

18. Narrate in short note on significance of ABO blood group system.

19. List out the types of antimicrobial drugs and add a note on its applications.

20. Write short note on advantages of ultra sound scan.

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S–2759

Sub. Code
23BMC1FC

B.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Microbiology and Clinical Lab Technology

INTRODUCTION TO CLINICAL LAB DIAGNOSIS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions

1. Laboratory safety
2. Code of Ethics
3. Sputum
4. Heparin
5. Volumetric flask
6. Cuvette holders
7. Incubator
8. Water deionizers
9. Molar solution
10. Normality

Part B (5× 5= 25)

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

11. (a) Write about role of Medical Laboratory technologists.

Or

(b) Explain about types of common accidents in diagnostic labs.

12. (a) Describe about various anticoagulants.

Or

(b) What are the methods involved in specimen transportation?

13. (a) Illustrate about calibration of Burettes.

Or

(b) State about types of cuvettes.

14. (a) Write about operation and Maintenance of water distillation plant.

Or

(b) Describe about role of electrode in pH Meter.

15. (a) Explain about preparation of 0.1 N NaCl from 1N NaCl.

Or

(b) Write about preparation of Buffer solution.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an essay about first aid methods of common lab accidents.

17. Give a brief note on collection, transportation and process of Blood sample.

18. Discuss about different types of flask.

19. Describe the Guidelines and precautions to be taken while using colorimeter.

20. Explain about preparation of working standard and stock solution with suitable example.

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S–2760

Sub. Code
23BMC2C1

B.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Microbiology and Clinical Lab Technology

GENERAL MICROBIOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions

1. Animalcule
2. Tyndallization
3. Peptidoglycan
4. Endospores
5. Simple stain
6. pH
7. Sterilization
8. Chemotherapy
9. Dark field microscope
10. TEM

Part B (5 × 5 = 25)

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

11. (a) Discuss the contribution of Alexander Fleming.

Or

(b) Explain the Koch's postulates.

12. (a) Describe the general characteristics of bacteria.

Or

(b) Write a short note on bacterial reproduction.

13. (a) Explain grams staining technique.

Or

(b) What is acid fast bacteria and describe its staining.

14. (a) Write a short note on filtration mode of sterilization.

Or

(b) Explain the mechanism of antimicrobial resistance.

15. (a) Analyze the applications of phase contrast and fluorescent microscopes.

Or

(b) Write a short note on SEM and its applications.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss in detail on spontaneous generations and biogenesis.

17. With neat sketch describe the ultra structure of bacteria.

18. Explain in detail the different phases of bacterial growth.

19. Write in detail various growth media used in microbiology laboratory

20. Analyze the functions of various parts in light microscope with labeled diagram

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S–2761

Sub. Code
23BMCA2

B.Sc. DEGREE EXAMINATION, APRIL 2024

Microbiology and Clinical Lab Technology

Allied – BLOOD BANKING TECHNOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions

1. Blood donar
2. Donar felicitation
3. Cryoprecipitate
4. Plasma fractionation
5. Transfusion filters
6. Oncology
7. Blood bags
8. Normal saline
9. Nucleic acid test
10. Cord blood

Part B (5 × 5 = 25)

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

11. (a) Explain the preparation of IEC materials.

Or

(b) Describe the mandatory tests involved in blood units.

12. (a) Comment on fresh frozen plasma.

Or

(b) Explain component testing.

13. (a) Write down the management practices involved in bleeding patients.

Or

(b) Write a note on neonatal transfusion.

14. (a) Describe the quality control measures taken for blood grouping reagents.

Or

(b) State the importance of blood bank services.

15. (a) Comment on apheresis.

Or

(b) Write down the importance of stem cells.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe the tests conducted for screening blood units.

17. Explain the blood components.

18. Discuss the selection of blood bags for component preparation.

19. Evaluate the legal aspects of blood banking.

20. Assess the types of automation in blood banking.

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S–2762	Sub. Code
	23BMCA3

B.Sc. DEGREE EXAMINATION, APRIL 2024.

Microbiology and Clinical Lab Technology

Allied – HOSPITAL INFECTION CONTROL PRACTICES

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Infection

2. ICN

3. Cross-infection

4. Standard precautions

5. Sterilization

6. Chemical sterilants

7. PPE

8. Hand hygiene

9. Biomedical waste

10. WHO

Part B (5 × 5 = 25)

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

11. (a) Analyze the major responsibility of ICN.

Or

(b) Comment on infection protection for health care workers.

12. (a) Discuss on universal precautions.

Or

(b) Analyses the infection control policies.

13. (a) Explain the physical methods of sterilization.

Or

(b) Write a short note on disinfection of medical equipments.

14. (a) Describe the steps of hand washing.

Or

(b) Analyze the role of hand hygiene in control of hospital acquired infections.

15. (a) Discuss in brief the problems associated with BMWM.

Or

(b) Explain in brief the disposal techniques of BMWM.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write a detailed note on health care education and training programmes.

17. Explain in detail various routes of transmission of infections.

18. Enumerate the disinfection procedures for viral pathogens contaminated devices.

19. Give a detailed account on types of PPE and their uses.

20. Analyze the sources of biomedical waste and their hazards.

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S–2763	Sub. Code
	23BMCA4

B.Sc. DEGREE EXAMINATION, APRIL 2024.

Microbiology and Clinical Lab Technology

Allied – MICROBIAL BIOTECHNOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Fermentation

2. Biomass

3. Microbial biotechnology

4. PGPR

5. Organic acid

6. Amino acid

7. Penicillin acylase

8. Purines

9. Vitamins

10. PHB

Part B (5 × 5 = 25)

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

11. (a) Write a short note on microbial production of enzymes through fermentation.

Or

(b) Analyze the microbial transformation process for high valued products.

12. (a) Write a short note on *Mycorrhizae* and its use

Or

(b) Analyze the importance of microbial technology in food industries.

13. (a) Explain the microbial production of citric acid and its uses.

Or

(b) Enumerate the general uses of amino acids in industry.

14. (a) Write a short note on amylase and protease.

Or

(b) Discuss the commercial applications of glucose isomerase and L-asparaginase.

15. (a) Write the uses of riboflavin and B-carotene.

Or

(b) Explain the biotranformation of steroids.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss in detail the general concepts and applications of fermentation.

17. Explain the development of genetically engineered bacteria for industrial applications.

18. Write a detailed note on microbial production of alcohols.

19. Explain in detail the biosynthesis of nucleotides.

20. Analyze in detail the different groups of antibiotics and their uses.

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S–2764	Sub. Code
	23BMC2S1

B.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Microbiology and Clinical Lab Technology

HUMAN ANATOMY AND HAEMATOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Cell Junction.
2. Endocrine.
3. Epithelial tissue.
4. Neuromuscular junction.
5. Adrenal gland.
6. Spinal nerves.
7. Platelets.
8. Haemostasis.
9. Antithrombin.
10. Myeloma.

Part B (5 × 5 = 25)

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

11. (a) List down the general principles of cell communication.

Or

(b) Explain the types of intracellular signaling.

12. (a) Classify tissues.

Or

(b) Explain the salient features of bones.

13. (a) Explain the structure of thymus and their disorders.

Or

(b) Classify peripheral nervous system.

14. (a) Explain the types of plasma proteins.

Or

(b) Describe the mechanism of preventing blood loss.

15. (a) Write a note on blood clotting inhibitors.

Or

(b) Briefly explain blood disorders.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Briefly explain the different structures of plasma membrane.

17. Explain the organization of skeletal muscle and physiology of muscle contraction.

18. With neat diagram explain the structure and functions of brain.

19. Briefly explain haematopoiesis.

20. Assess the blood clotting factors.

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S–2765

Sub. Code
23BMC2S2

B.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Microbiology and Clinical Lab Technology

MICROBIAL PHYSIOLOGY AND METABOLISM

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Diauxic growth
2. Osmophiles
3. Microbial nutrition
4. Diffusion
5. Photosynthesis
6. Chlorophyll
7. Respiration
8. ETC
9. Diazotrophs
10. Denitrification

Part B (5 × 5 = 25)

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

11. (a) Explain synchronous culture technique.

Or

(b) Comment on microbial adaptations in thermophilic and psychrophilic conditions.

12. (a) Analyze the active transport of nutrients in bacteria.

Or

(b) Explain Iron uptake mechanism in bacteria.

13. (a) Describe the structure of carotenoids and phycobilins.

Or

(b) Explain anoxygenic photosynthesis in bacteria.

14. (a) Describe the components of respiratory chains.

Or

(b) Explain pentose phosphate pathway of glucose oxidation.

15. (a) Explain the mechanism of ammonia assimilation in bacteria.

Or

(b) Compare assimilatory and dissimilatory nitrate reduction process.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Critically analyze the microbial growth in response to nutrition and energy.

17. With a neat sketch describe passive and facilitated diffusion in bacteria.

18. Explain in detail cyclic and non-cyclic electron transport of microbial photosynthesis.

19. Explain in detail TCA cycle and its significance.

20. Give a detailed note on biological nitrogen fixation.

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