

G 8522



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Reg. No......

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Fourth Year

BIOCHEMISTRY – IV

(Prior to 2008 Admissions–Last and Final Special Mercy Chance)

Time : Three Hours

Maximum : 100 Marks

Answer Sections A and B in separate answer books.

Section A

I. Describe the biological role and examination of Vitamins A and C. (18)

II. Write short notes on :

- (a) Hormones secreted by the hypothalamus and their significance.
- (b) Kidney function test.
- (c) Quality control procedure.
- (d) Sex hormones.

(4 × 4 = 16)

III. Write Briefly on :

- (a) Liver function test.
- (b) Computers in the clinical laboratory.
- (c) Vitamin B.
- (d) Automated clinical chemistry analyzers.

(4 × 4 = 16)

Section B

I. Explain the basic principles of Immunological techniques, mentioning the qualitative analysis of proteins.

(18)

Turn over





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II. Write short notes on :

- (a) Screening of VMA and ketosteroids.
- (b) Detection and measurement of radioactivity.
- (c) Antigen-antibody interactions.
- (d) Estimation of triglycerides.

(4 × 4 = 16)

3. Write Briefly on :

- (a) Importance of statistical analysis.
- (b) 5-HI A A test.
- (c) Reference value and its importance.
- (d) Radiation and radioactivity.

(4 × 4 = 16)



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Reg. No......

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Fourth Year

DIAGNOSTIC BACTERIOLOGY, VIROLOGY AND SEROLOGY

(Prior to 2008 Admissions – Last and Final Special Merchance)

Time : Three Hours

Maximum : 100 Marks

Answer Sections A and B in separate Answer Books.

Draw diagrams whenever necessary.

Section A

1. (a) Explain the epidemiology, pathogenesis, and control of Salmonella.
(b) Write about the pathogenesis and lab diagnosis of Pseudomonas and Shigella.

(9 + 9 = 18)

2. Write short notes on :

- (a) Staphylococcus.
- (b) Bacterial food poisoning.
- (c) Epidemiology of Corynebacterium.
- (d) Control of *Vibrio cholerae*.

(4 × 4 = 16)

3. Write Briefly on :

- (a) Antibiotic sensitivity testing.
- (b) Collection and processing of Bone marrow.
- (c) Measurement of bacterial growth.
- (d) Clostridium and its pathogenesis.

(4 × 4 = 16)

Section B

1. (a) Explain the techniques to diagnose viral infection.
(b) Explain the collection, processing, and preservation of biopsy specimens for viral disease identification.

(9 + 9 = 18)





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2. Write short notes on :

- (a) Fluorescent antibody test.
- (b) Medically important RNA virus.
- (c) Classification of virus.
- (d) Determination of IgM antibodies.

(4 × 4 = 16)

3. Write Briefly on :

- (a) Thyroid antibody test.
- (b) Methods for the cultivation of the virus.
- (c) C3, C4 components.
- (d) Latex agglutination test.

(4 × 4 = 16)



G 8524



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Reg. No......

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Fourth Year

MYCOLOGY, VIROLOGY AND APPLIED MICROBIOLOGY

(2008 Admission Onwards–Last and Final Special Mercy Chance)

Time : Three Hours

Maximum : 100 Marks

Answer Sections A and B in separate answer books.

Answer all questions.

Draw diagrams wherever necessary.

Section A

1. Answer in one word or sentence :

- (a) A disease-causing filamentous fungi.
- (b) Filter sterilization.
- (c) Paul Bunnell test.
- (d) HIV virus.
- (e) Superficial mycosis.

(5 × 1 = 5)

2. Write Briefly on :

- (a) Stains for fungal identification.
- (b) Cytochemical diagnostic methods.
- (c) Detection of viral growth in cell culture.
- (d) Medically important RNA viruses.
- (e) Cell culture media.

(5 × 3 = 15)

3. Write short notes on :

- (a) Lab diagnosis of Cryptococcus
- (b) Pathogenicity of Candida species.
- (c) Immunoelectron microscopy.
- (d) Reproduction in fungi.

(4 × 5 = 20)

Turn over





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4. Explain the collection, preservation, isolation, and identification of CSF and biopsy specimens for viral diagnosis

(10)

Section B

1. Answer in one word or sentence

- | | |
|----------------------------------|----------------------------|
| (a) Southern Blotting. | (b) Hemagglutination test. |
| (c) A water borne disease. | (d) Methylene blue test. |
| (e) Presumptive coli form count. | |

(5 × 1 = 5)

2. Write Briefly on :

- (a) Antibiotic resistance.
- (b) Respiratory infections.
- (c) Genetic Engineering for vaccine development.
- (d) PCR.
- (e) Detection of C-reactive protein.

(5 × 3 = 15)

3. Write short notes on :

- (a) Collection, transportation, and processing of specimens.
- (b) Airborne diseases.
- (c) Examination of water.
- (d) Infections from blood transfusion

(4 × 5 = 20)

4. Explain how food and food products can be examined for microbial infections.

(10)



G 8525



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Reg. No.....

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Fourth Year

HISTOTECHNOLOGY AND CYTOGENETICS

(2008 Admission onwards - Last and Final Special Mercy Chance)

Time : Three Hours

Maximum : 100 Marks

Answer Sections A and B in separate Answer Books.

*Answer **all** questions.*

Draw diagrams wherever necessary.

Section A

I. Answer in one word or sentence :

- (a) Uses of formalin
- (b) Decalcification
- (c) An acidic dye.
- (d) Hematoxylin.
- (e) Disadvantages of mercuric chloride.

(5 × 1 = 5)

II. Write Briefly on :

- (a) Technique of mounting and mounting media.
- (b) Serial sectioning.
- (c) Automatic tissue processors.
- (d) Gram staining and AFB staining.
- (e) Carnoy's fixative and Bouin's fluid.

(5 × 3 = 15)

Turn over





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III. Write short notes on :

- (a) Dehydrating agents.
- (b) Methods of examination of fresh tissue specimens.
- (c) Technique of paraffin wax impregnation.
- (d) Types of microtomes.

(4 × 5 = 20)

IV. Write about fixation and secondary fixation. Explain the classification and qualities of fixatives.

(10)

Section B

I. Answer in one word or sentence :

- (a) Drum stick count.
- (b) Turner's syndrome.
- (c) Testicular feminization syndrome.
- (d) A chromosomal change in Neoplasia.
- (e) Application of immunohistochemistry.

(5 × 1 = 5)

II. Write Briefly on :

- (a) Processing of skin tissue.
- (b) Philadelphia chromosome.
- (c) Y chromosome demonstration.
- (d) Storage and demonstration of foetal skeleton.
- (e) Clinical utility of bone marrow culture.

(5 × 3 = 15)





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III. Write short notes on :

- (a) Fixation and Special processing techniques for CNS.
- (b) Organization of a museum.
- (c) Cryostat and its uses.
- (d) Staining of the Barr body.

(4 × 5 = 20)

IV. Explain methods for chromosome analysis and banding techniques.

(10)



G 8526



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Reg. No.....

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Fourth Year

BIOCHEMISTRY – IV

(2008 Admission onwards – Last and Final Special Mercy Chance)

Time : Three Hours

Maximum : 100 Marks

Answer Sections A and B in separate answer books.

Answer all questions.

Draw diagram wherever necessary.

Section A

I. Answer to the following in one word sentence/word :

- (a) Gastrin is a hormone secreted by _____.
- (b) _____ is the main cause of Hepatitis
- (c) Respiratory acidosis is caused by _____.
- (d) Cirrhosis means _____.
- (e) Definition of buffer is _____.

(5 × 1 = 5)

II. Write briefly on :

- (a) Schilling test.
- (b) Metabolic acidosis.
- (c) Functions of Gastric juice and test for it.
- (d) Hyper thyroidism.
- (e) Measurement of estriol.

(5 × 3 = 15)





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III. Write short notes on :

- (a) Disorders in male and female due to gonadal functioning.
- (b) Diseases of liver.
- (c) Kidney function test.
- (d) Respiratory regulation of pH.

(4 × 5 = 20)

IV. Write about importance of sodium, potassium and calcium in metabolism and disorders associated with these minerals.

(10)

Section B

I. Answer to the following in one word sentence/word:

- (a) Quality control ensures _____.
- (b) _____ is a hormones produced by pituitary glands.
- (c) Genetic code can be defined as _____.
- (d) _____ is an example of variable.
- (e) Accuracy means _____.

(5 × 1 = 5)

II. Write briefly on :

- (a) Semi auto analyzer.
- (b) Human genome project.
- (c) DNA replication.
- (d) Centrifugal analyzer.
- (e) Determination of estrogen in plasma.

(5 × 3 = 15)





G 8526

III. Write briefly on :

- (a) rDNA technology.
- (b) Automation of clinical laboratory.
- (c) Transcription.
- (d) Continuous flow analyzers.

(4 × 5 = 20)

IV. Write an account on thyroid and pituitary hormones

(10)



G 8527



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Reg. No......

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY(M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Second Year

BACTERIOLOGY, IMMUNOLOGY AND MYCOLOGY

(Prior to 2008 Admissions - Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

*Answer A and B in separate Answer Books.
Draw diagrams wherever necessary..*

Section A

I. Explain methods of gene transfer in bacteria. How can we classify bacteria based on morphology ?

(18)

II. Write short notes on :

- (a) Bacterial staining.
- (b) Any two tests for carbohydrate metabolism.
- (c) Mycoplasma and its characteristic features.
- (d) Pathogenicity of *Bacillus cereus*.

(4 × 4 = 16)

III. Write briefly on :

- (a) Bacterial infections from water.
- (b) Pathogenicity of *Mycobacterium* and *Klebsiella*.
- (c) Diphtheria.
- (d) Pathogenicity of *Pneumococci* and *Streptococci*.

(4 × 4 = 16)





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Section B

I. Explain the structure of immunoglobulins. Write about antigen-antibody reactions.

(18)

II. Write short notes on :

- | | |
|----------------------------|---------------------------------|
| (a) Immunofluorescence. | (b) Humoral immune response. |
| (c) Monoclonal antibodies. | (d) Hypersensitivity reactions. |

(4 × 4 = 16)

III. Write briefly on :

- (a) Superficial mycosis.
- (b) Diphasic fungi.
- (c) Collection and examination of fungal culture.
- (d) *Tinea nigra*.

(4 × 4 = 16)



G 8528



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Reg. No......

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY(M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Second Year

BIOPHYSICS

(Prior to 2008 Admissions - Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

*Answer A and B in **separate** Answer Books.*

Section A

- I. Write an account on types of microscopes. Write about the maintenance and significance of each types.

(18)

- II. Write short notes on :

- (a) Blood gas analyzer.
- (b) Ventilators.
- (c) Vortex mixer and magnetic stirrer.
- (d) ECG equipment and technique.

(4 × 4 = 16)

- III. Write briefly on :

- (a) Flame photometer and its uses.
- (b) Laser applications in medicine.
- (c) Audiometry.
- (d) Pace maker and its functioning.

(4 × 4 = 16)





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Section B

I. Give an account of semiconductor devices and their applications.

(18)

II. Write short notes on :

- (a) Circuit blocks and amplifiers.**
- (b) Bistable and monostable multi vibrators.**
- (c) Faradays Law and Lenz's Law.**
- (d) Electromagnetic induction.**

(4 × 4 = 16)

III. Write briefly on :

- | | |
|--------------------------|---------------------------------|
| (a) EEG and EMG. | (b) Types of capacitors. |
| c) Potentiometer. | (d) Types of coupling. |

(4 × 4 = 16)



G 8529



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Reg. No.....

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY(M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Second Year

BIOCHEMISTRY – II

(Prior to 2008 Admissions - Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

Answer A and B in separate Answer Books.

Section A

I. Explain the digestion and absorption of carbohydrates

(18)

II. Write short notes on :

- | | |
|------------------------------|---------------------------------|
| (a) Protein digestion. | (b) Lipid absorption. |
| (c) Glycogen storage disease | (d) B oxidation of fatty acids. |

(4 × 4 = 16)

III. Write briefly on :

- | | |
|------------------------|-----------------------|
| (a) Citric acid cycle. | (b) DNA structure. |
| (c) Glycolysis. | (d) Purine breakdown. |

(4 × 4 = 16)

Section B

I. Write about purine metabolism and inborn errors associated with it.

(18)

II. Write short notes on :

- | |
|--|
| (a) Estimation of iron and sodium. |
| (b) Determination of blood pH. |
| (c) Disorder associated with lipid metabolism. |
| (d) Blood gases. |

(4 × 4 = 16)





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III. Write briefly on :

- (a) Absorption of iron.
- (b) Estimation of serum electrolytes.
- (c) Estimation of Trace Elements.
- (d) Protein synthesis.

(4 × 4 = 16)



G 8530



Reg. No.....

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Second Year

HAEMOTOLOGY

(Prior to 2008 Admissions - Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

Answer A and B in separate Answer Books.

Draw diagrams wherever necessary.

Section A

- I. Write an account of the origin and development of different types of blood cells. (10)
- II. Explain the preparation of blood smear and bone marrow smear. (9)
- III. Write briefly on the following :
- (a) Identification of LD bodies in bone marrow.
 - (b) Supravital staining.

(2 × 7½ = 15)

IV. Write short notes on :

- (a) Eosinophils and Platelet count.
- (b) Hb electrophoresis.
- (c) Structure of haemoglobin.
- (d) Leishman's stain.

(4 × 4 = 16)

Section B

- I. Explain the mechanism of blood coagulation. Write about the assay of coagulation factors. (10)
- II. Define and classify Leukemia. (9)





G 8530

III. Write briefly on the following :

- (a) LE cell phenomenon and its demonstration.
- (b) Bone marrow transplantation.

(2 × 7½ = 15)

IV. Write short notes on :

- (a) Classification and etiology of anemia..
- (b) Clinical significance of ESR and PCV.
- (c) Lab diagnosis of infectious mononucleosis.
- (d) Determination of Red Cell Indices.

(4 × 4 = 16)



G 8531



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Reg. No.....

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY(M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Second Year

BIOCHEMISTRY – II

(2008 Admission onwards - Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

*Answer Sections A and B in **separate** Answer Books.*

Draw diagrams wherever necessary.

*Answer **all** questions.*

Section A

I. Answer to the following in one word sentence/ word :

- (1) Galactosemia means _____.
- (2) Ketosis means _____.
- (3) _____ is a structural protein.
- (4) Major site of amino acid degradation in mammals is _____.
- (5) Condensation of acetyl CoA and oxaloacetate is catalysed by _____.

(5 × 1 = 5)

II. Write briefly on :

- (1) Oxidative phosphorylation.
- (2) Ketogenesis.
- (3) Importance of fructose metabolism.
- (4) Fatty liver.
- (5) Total protein estimation.

(5 × 3 = 15)





G 8531

III. Write briefly on :

- (1) One carbon metabolism.
- (2) Hormonal regulation of blood glucose.
- (3) Cori's cycle.
- (4) Formation of ammonia.

(4 × 5 = 20)

IV. Explain gluconeogenesis and glycogenolysis.

(10)

Section B

I. Answer to the following in one word sentence/ word :

- (1) _____ is an example for inborn error of metabolism
- (2) Alkaptonuria is caused by _____.
- (3) Gout is caused by _____.
- (4) Albinism means _____.
- (5) Cystinuria is caused by _____.

(5 × 1 = 5)

II. Write briefly on :

- (1) Lactose intolerance.
- (2) Phenyl ketonuria.
- (3) Estimation of creatine and creatinine.
- (4) Abnormal constituents of urine.
- (5) Chemical examination of peritoneal fluid.

(5 × 3 = 15)





G 8531

III. Write briefly on :

- (1) Protein energy malnutrition.**
- (2) Fat soluble vitamins.**
- (3) Deficiency symptoms of Vit B.**
- (4) Disorders of amino acid metabolism.**

(4 × 5 = 20)

IV. Explain the nutritional and calorific value of food.

(10)



G 8532



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Reg. No......

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY(M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Second Year

GENERAL MICROBIOLOGY

(2008 Admission onwards - Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

Answer Sections A and B in separate Answer Books.

Section A

1. Answer to the following in one word/sentence :

- a) Internal dm of a wire loop.
- b) Culture method used to maintain stock culture.
- c) Candle jar.
- d) Name 3 Oxidase positive organism.
- e) Indicator of Christensen's medium. .

(5 × 1 = 5)

2. Write short notes on :

- a) ONPG test.
- b) Agar- agar.
- c) Lysed blood agar.
- d) Loeffler's serum slope.
- e) Catalase test.

(5 × 3 = 15)





G8532

3. Write briefly on :

- a) Conjugation.
- b) Sugar fermentation tests.
- c) Equipments for pH detection.
- d) Genotypic variation

(4 × 5 = 20)

4. Enumerate 4 selective media. Describe in detail any 2 of them.

(2 + 8 = 10)

Section B

5. Answer to the following in one word or sentence :

- a. Concentration of CO₂ required for capnophilic organisms.
- b. Culture method used for ABST.
- c. Expand IMViC.
- d. Concentration of oxidase reagent.
- e. Metal which can reduce nitrate to nitrite.

(5 × 1 = 5)

6. Write short notes on :

- a. Muller hinton agar.
- b. Batch culture.
- c. Methyl red test.
- d. Spectrophotometer.
- e. Types of mutation.

(5 × 3 = 15)





G 8532

7. Write briefly on :

- a. Test for metabolism of proteins.
- b. Transduction.
- c. Basal media.
- d. Different routes of animal inoculation .

(4 × 5 = 20)

8. Classify special medias, describe in detail about LJ medium and transport media

(10)



G 8533



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Reg. No......

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY(M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Second Year

PARASITOLOGY AND ENTOMOLOGY

(2008 Admission onwards - Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

*Answer Sections A and B in **separate** Answer Books.*

Draw diagrams wherever necessary.

*Answer **all** questions.*

Section A (Parasitology)

1. Answer the following in one word or sentence :

- a. Symbiosis.
- b. Smallest cestode.
- c. Ovo-viviparous.
- d. Types of larva migrans.
- e. Skin test for *Echinococcus granulosus*.

(5 × 1 = 5)

2. Write short notes on :

- a. Ameobic dysentery.
- b. Larva migrans.
- c. Hydatid cyst.
- d. Biological vector.
- e. Enterotest.

(5 × 3 = 15)





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3. Write briefly on :

- a. Taeniasolium.
- b. Morphological forms of Leishmaniadonovani.
- c. Cryptosporidios.
- d. Kala-azar.

(4 × 5 = 20)

4 . Describe the morphology of Ancylostomaduodenale Explain the life cycle, pathogenesis and laboratory diagnosis of this parasite.

(10)

Section B (Entomology)

5. Answer the following in one word or sentence :

- a. Name the vector for Kala azar.
- b. Louse infestation is known as _____.
- c. Common name of Phthirus pubis.
- d. Name the water flea.
- e. Vector for KFD.

(5 × 1 = 5)

6. Write shorts notes :

- a. Culex mosquito.
- b. Chemical control of vectors.
- c. Flea indeces.
- d. Cyclops.
- e. Residual Sprays.

(5 × 3 = 15)





G 8533

7. Write briefly on :

- a. Rat flea.
- b. Sand-fly.
- c. Cimex.
- d. Hard tick.

(4 × 5 =20)

8. Classification of insects of medical importance. Discuss briefly bionomics of Aedes mosquito.

(5 + 5 =10)



G 8534



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Reg. No.....

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY(M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Second Year

HAEMATOLOGY

(2008 Admission onwards - Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

*Answer Sections A and B in **separate** Answer Books.*

Draw diagram wherever necessary.

*Answer **all** questions.*

Section A

I. Answer the following in one word or sentence :

- a) Alkali dinaturation test is used for the detection of _____.
- b) Ree's and Ecker's method is used for _____ count.
- c) Which is the main site of blood cell production during the second trimester of pregnancy ?
- d) Name the largest cell of myeloid series.
- e) Depth of Fuch - Rosenthal counting chamber.

(5 × 1 = 5)

II. Write short notes on :

- a) Buffy coat smear preparation.
- b) Hayem's fluid for RBC count.
- c) Microhaematocrit.
- d) Citrate based anticoagulants.
- e) Absolute eosinophil count.

(5 × 3 = 15)





G 8534

III. Write briefly on :

- a) Stages of erythropoiesis.
- b) Identification of abnormal hemoglobins.
- c) Methods of platelet counting.
- d) Determination of red cell indices.

(4 × 5 = 20)

IV. Briefly explain the principles of staining. Which are the Romanowsky stains? Describe the preparation and staining properties of Leishman's stain.

(10)

Section B

V. Answer the following in one word or sentence :

- a) Anticoagulant used for platelet count.
- b) ——— is the stain used for Rapid staining method.
- c) Granules present in neutrophil are ——— coloured
- d) Scavenger cell is the other name for ———.
- e) Bore size of needle used for venipuncture in adults.

(5 × 1 = 5)

VI. Write short notes on :

- a) Cyanmethaemoglobin method.
- b) Monocytosis.
- c) LD bodies.
- d) Myeloperoxidase stain.
- e) Tests for fibrinolysis.

(5 × 3 = 15)





G 8534

VII. Write briefly on :

- a) Polycythemia.
- b) Hb electrophoresis.
- c) Enumerate the types and stages of malarial parasites seen in blood.
- d) Osmotic fragility test.

(4 × 5 = 20)

VIII. Define and classify leukemia. Describe the peripheral smear and bone marrow findings in chronic myeloid leukemia

(2 + 3 + 5 =10 marks)



G 8535



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Reg. No......

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

First Year

BIOCHEMISTRY – I

(Prior to 2008 Admissions - Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

Answer Sections A and B in separate Answer Books.

Section A

- I. (a) Explain the classification and properties of lipids.
(b) Write about lipoproteins.

(18)

II. Write short notes on :

- (a) Abnormal constituents of urine.
(b) Examination of CSF.
(c) Structure of proteins.
(d) Blood glucose maintenance.

(4 × 4 = 16)

III. Write briefly on :

- (a) Plasma proteins.
(b) Polysaccharides.

(2 × 5 = 10)

IV. Write a short note on :

- (a) Immunoglobulins.
(b) LDL and HDL.
(c) Glucose tolerance test.

(3 × 2 = 6)





G 8535

Section B

I. Explain methods for estimation of glucose, urea, creatinine, and uric acid.

(18)

II. Write short notes on :

- (a) Law of mass action.
- (b) Donnan equilibrium.
- (c) Buffer.
- (d) Dialysis.

(4 × 4 = 16)

III. Write briefly on :

- (a) Strong acid and weak acid.
- (b) Osmosis and reverse osmosis.

(2 × 5 = 10)

IV. Write a short note on :

- (a) Surface tension.
- (b) Viscosity.
- (c) Diffusion.

(3 × 2 = 6)



G 8536



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Reg. No......

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Third Year

BIOCHEMISTRY - III

(Prior to 2008 Admissions - Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

Answer Sections A and B in separate Answer Books.

Section A

1. Describe the properties, synthesis and metabolism of Hemoglobin.

(18)

II. Write short notes on :

- (a) Factors influencing enzyme action.
- (b) Test for urobilin in urine.
- (c) Secondary disorders of Heme synthesis.
- (d) Enzyme purification.

(4 × 4 = 16)

III. Write briefly on :

- (a) Estimation of serum Phosphatase.
- (b) Examination of calculi.
- (c) KM value and its determination.
- (d) Co enzymes and isoenzymes.

(4 × 4 = 16)

Section B

- I. Explain different types of chromatography and applications.

(18)





G 8536

II. Write short notes on :

- (a) Fundamental principles of chromatography.
- (b) PAGE.
- (c) Chromatographic separation of amino acids.
- (d) Agarose electrophoresis.

(4 × 4 = 16)

III. Write briefly on :

- (a) Buffers used in electrophoresis.
- (b) Partition chromatography.
- (c) Test for porphyrins.
- (d) Estimation of bilirubin.

(4 × 4 = 16)



G 8537



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Reg. No......

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Third Year

BIOMEDICAL INSTRUMENTATION TECHNOLOGY

(Prior to 2008 Admissions - Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

Answer Sections A and B in separate Answer Books.

Section A

I. Explain types of ECH machines and stress electrocardiography. (18)

II. Write short notes on :

- (a) Thallium imaging.
- (b) Cardiac catheterization.
- (c) Transmitters in neurosurgery.
- (d) Echoencephalography.

(4 × 4 = 16)

III. Write briefly on :

- (a) Common ECG abnormalities.
- (b) Operating microscopes.
- (c) X-ray angiography.
- (d) MRI and PET.

(4 × 4 = 16)

Section B

I. Explain the constituents of blood. Write about blood transfusion. (18)

II. Write short notes on

- (a) Kidney and regulation of urine function
- (b) Respiratory tract .
- (c) Pulmonary function test.
- (d) Fiberoptic bronchoscopy.

(4 × 4 = 16)





G 8537

III. Write briefly on :

- (a) Heart-lung machine.
- (b) Pulmonary function test.
- (c) Fine needle aspiration and Biopsy.
- (d) Staining of bacteria.

(4 × 4 = 16)



G 8538



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Reg. No.....

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Third Year

BIOMEDICAL INSTRUMENTATION TECHNOLOGY - II

(Prior to 2008 Admissions - Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

Answer Sections A and B in separate Answer Books.

Section A

- I. Explain the structure of the ear. Write about the function of various parts of sound conducting system.**

(18)

- II. Write short notes on :**

- (a) Hepatitis B testing.**
- (b) Sigmoidoscopy**
- (c) Electronystagmography.**
- (d) Hearing test and hearing aids.**

(4 × 4 = 16)

- III. Write briefly on :**

- (a) Gaze test.**
- (b) Liver biopsy.**
- (c) Disorders of hearing.**
- (d) D xylose test.**

(4 × 4 = 16)

Section B

- I. Explain the anatomy and functioning of a normal kidney. Write a note on dialysis.**

(18)





G 8538

II. Write short notes on :

- (a) Haemodialysis and Dialysis for poisoning.
- (b) Gas filled detectors and Ionisation chamber detectors.
- (c) Production of radio active nuclides.
- (d) Brain scanning.

(4 × 4 = 16)

III. Write briefly on :

- (a) Bone imaging.
- (b) CT and MRI.
- (c) Scintillation cameras.
- (d) Radio activity and units of radioactivity.

(4 × 4 = 16)



G 8539



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Reg. No......

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Third Year

BIOCHEMISTRY – III

(2008 Admission onwards - Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

Answer Sections A and B in separate Answer Books.

Answer all questions.

Section A

- I. Write an account on the classification of enzymes. Explain the mechanism and factors affecting enzyme action.

(18)

- II. Write short notes on :

- 1 Disorders of porphyrin metabolism.
- 2 Chemistry and properties of Hemoglobin.
- 3 Principle and method for the estimation of Amylase and Lipase.
- 4 Bile pigments and their role.

(4 × 5 = 20)

- III. Write briefly on :

- 1 Immobilization of enzymes.
- 2 Estimation of porphyrins.
- 3 Plasma enzyme pattern in liver diseases.
- 4 Haemoglobin derivatives and variants.

(4 × 3 = 12)

Section B

- I. Explain the principle and types of chromatography.

(18)





G 8539

II. Write short notes on :

- 1 RIA and ELISA.
- 2 Paper and gel electrophoresis.
- 3 Chromatography of amino acids.
- 4 FIA and Receptor assays.

(4 × 5 = 20)

III. Write briefly on :

- 1 Immunoelectrophoresis
- 2 Urinary calculi
- 3 Isoelectric focusing
- 4 Antigen antibody reaction

(4 × 3 = 12)



G 8540



Reg. No......

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Third Year

BACTERIOLOGY

(2008 Admission onwards - Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

*Answer Sections A and B in **separate** Answer Books.
Draw diagrams wherever necessary.*

Section A

I. Give general characters, classification of common pathogenic species.

(9 + 9 = 18)

II. Write briefly on :

- (a) Enterobacteriaceae.
- (b) Staining of bacteria.
- (c) Diagnosis of Streptococcus infection.
- (d) Epidemiology and identification of Pneumococcus.

(4 × 4 = 16)

III. Write short notes on :

- (a) Pathological Importance of Klebsiella and Serratia.
- (b) Microbial susceptibility to chemical and physical agents.
- (c) Normal flora in human body.
- (d) Mycoplasma.

(4 × 4 = 16)

Section B

I. Write an account on collection, preservation transport and processing of CSF, urine and blood.
Explain how bacterial infections can be identified from these specimens

(10 + 8 = 18)





G 8540

II. Write briefly on :

- (a) Drug resistance and antibiotic susceptibility.
- (b) Infections in immunocompromised patients.
- (c) Microbial culture media.
- (d) Plague and anthrax.

(4 × 4 = 16)

III. Write short notes on :

- (a) Infections in central nervous system.
- (b) Enteric fever.
- (c) Streptococcal infections and tests for identification.
- (d) Food poisoning.

(4 × 4 = 16)



G 8541



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Reg. No.....

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Third Year

CYTOLOGY AND TRANSFUSION TECHNOLOGY

(2008 Admission onwards - Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

Answer Sections A and B in separate Answer Books.

Answer all questions.

Draw diagrams wherever necessary.

Section A

I. Answer in one word or sentence :

- (a) Millipore filter.
- (b) Methyl green.
- (c) Gonadal dysgenesis.
- (d) Enlist plasma cells.
- (e) Cells originating from the normal cervix.

(5 × 1 = 5)

II. Write Briefly on :

- (a) Mounting techniques and mounting media.
- (b) Normal vaginal flora.
- (c) Testicular feminine syndrome.
- (d) Fixatives used for body fluids.
- (e) Cytology of the female genital tract in neoplastic condition.

(5 × 3 = 15)

III. Write short notes on :

- (a) Hormonal variations in different age groups.
- (b) Structure of ovarian follicles.
- (c) Cytological variations in malignancy and inflammation.
- (d) T lymphocytes and B lymphocytes.

(4 × 5 = 20)

IV. Describe the structure and function of cells and the nucleus.

(10)





G 8541

Section B

I. Answer in one word or sentence :

- (a) Pyrogens.
- (b) Rh typing.
- (c) Leukapheresis.
- (d) Antigen detection.
- (e) Bombay blood group.

(5 × 1 = 5)

II. Write Briefly on :

- (a) Inheritance of blood group.
- (b) Antibody titration.
- (c) Compatibility testing in urgent cases.
- (d) Preparation for transfusion of red cells.
- (e) Lewis blood.

(5 × 3 = 15)

III. Write short notes on :

- (a) Screening of Filaria.
- (b) Preservation of red cells in Glycerol and liquid nitrogen.
- (c) Cross-matching and serological tests on donor blood.
- (d) Preservation and storage of blood.

(4 × 5 = 20)

IV. Explain ABO, MS, and Kell blood group systems.

(10)



G 8542



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Reg. No.....

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

Third Year

**ELECTRONICS, COMPUTER SCIENCE AND BIOMEDICAL INSTRUMENTATION
TECHNOLOGY**

(2008 Admission onwards - Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

Answer Sections A and B in separate Answer Books.

Answer all questions.

Section A (Electronics and Computer Science)

I. Discuss the construction and working of PNP and NPN transistors.

(18)

II. Write short notes on :

- (a) Outline the characteristics of a PN junction diode.
- (b) Explain the working of Zener diode as voltage regulator.
- (c) Write a short note on common emitter.
- (d) Distinguish between the LED and LCD displays.

(4 × 4 = 16)

III. Write briefly on :

- (a) List out the application of computers in medical laboratory.
- (b) Identify the hardware components of a computer system.
- (c) Summarize the classification of computer memory.
- (d) Highlight the differences between LAN and WAN network.

(4 × 4 = 16)

Section B (Biomedical Instrumentation Technology)

IV. Enumerate the working and maintenance of laboratory refrigerators and deep freezers.

(18)





G 8542

V. Write short notes on :

- (a) Elaborate the working principle of a walk-in cooler
- (b) Analyze the functions of Cathode Ray Oscilloscope (CRO)
- (c) Estimate the uses of a digital multimeter in biomedical laboratories.
- (d) Assume the components and applications of a colorimeter.

(4 × 4 = 16)

VI. Write briefly on :

- (a) Write a short note on ECG abnormalities.
- (b) Assume the features of Echocardiography.
- (c) Conclude the structure of Fibre optics.
- (d) Elucidate difference between scintillation detector and ionization detector.

(4 × 4 = 16)



G 8543



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Reg. No......

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

First Year

ANATOMY AND PHYSIOLOGY

(2008 Admission onwards–Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

*Answer Sections A and B in **separate** answer-books.*

Draw neat, labelled diagrams wherever necessary.

Section A (Anatomy)

I. Name the following :

- (a) Name the longest bone in the human body.
- (b) Name the double-layered serous membrane covering the heart.
- (c) Name the largest salivary gland.
- (d) Name the bone that forms the heel of the foot.
- (e) Name the light-sensitive layer of the eye.

(5 × 1 = 5)

II. Write briefly on :

- (a) Gross features and parts of the Humerus.
- (b) Biceps Brachii muscle (Attachments, nerve supply, and action).
- (c) Gross anatomy of the Right and Left Lungs.
- (d) Structure and relations of the Urinary Bladder.
- (e) Parts and regions of the Small Intestine.

(5 × 5 = 25)





G 8543

III. Write short notes on :

- (a) Microscopic structure of Compact Bone.
- (b) Gross anatomy of the Ovary.
- (c) Pituitary Gland (Location and lobes).
- (d) Microscopic structure of a Lymph Node.
- (e) Structure of Skin and its principal layers.

(5 × 4 = 20)

Section B (Physiology)

I. Answer in one word or one sentence :

- (a) What is the normal resting heart rate in healthy adults?
- (b) Which cell organelle is known as the powerhouse of the cell ?
- (c) Name the primary site of gas exchange in the lungs.
- (d) What is the normal human blood platelet count range ?
- (e) Name the hormone responsible for milk ejection in lactating mothers.

(5 × 1 = 5)

II. Write briefly on :

- (a) Erythrocyte Sedimentation Rate (ESR) and its clinical significance.
- (b) Define Vital Capacity and give its normal value.
- (c) Functions of Gastric Juice.
- (d) Physiological functions of Testosterone hormone.
- (e) Active transport mechanisms across cell membranes.

(5 × 3 = 15)





G 8543

III. Write short notes on :

- (a) Classification and functions of White Blood Cells (WBCs).
- (b) Waves and clinical significance of a normal Electrocardiogram (ECG).
- (c) Physiological actions of Thyroid hormones (T_3 and T_4).
- (d) Formation, circulation, and functions of Cerebrospinal Fluid (CSF).
- (e) Common Refractive Errors of the Eye.

(5 × 4 = 20)

IV. Long Essay :

Describe the functional anatomy of the Cardiovascular System. Explain short-term and long-term regulation of Blood Pressure.

(4 + 6 = 10)



G 8544



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Reg. No......

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

First Year

BIOCHEMISTRY – I

(2008 Admission onwards–Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

Answer Sections A and B in separate answer books.

Answer all questions.

Section A

I. Answer in one word or sentence:

- 1 What is Bee's law ?
- 2 What is the ph of normal blood ?
- 3 Name any two anticoagulant.
- 4 Powerhouse of cell.
- 5 Define osmosis.

(5 × 1 = 5)

II. Write briefly on :

- 1 Donnan membrane equilibrium and its application
- 2 Composition of borosilicate glassware
- 3 How will you prepare 100ml 0.1N NaOH
- 4 Passive transport
- 5 Maintenance of centrifuge.

(5 × 3 = 15)





G 8544

III. Write notes on :

- 1 laboratory cleaning solution
- 2 spectrophotometer
- 3 H-Hequation
- 4 Radio isotope and their application

(4 × 5 = 20)

IV. Discuss about collection, preservation and processing of various biological specimen for biochemical analysis.'

(10)

Section B

I. Answer in one word or sentence :

- 1 Name the carbohydrate which act as an anticoagulant
- 2 The steroid contain a cyclicring known as —————.
- 3 What is a nucleoside ?
- 4 The imino acid found in protein structure.
- 5 What is flocculation ?

(5 × 1 = 5)

II. Write briefly on :

1. Poly unsaturated fatty acid
2. Rancidity
3. Essential amino acid
4. Conjugated proteins
5. Mutarotation.

(5 × 3 = 15)





G 8544

III. Write notes on :

- 1 Denaturation of protein
- 2 Mucopolysaccharide
- 3 Structure of purines and pyrimidine nucleotide
- 4 Disaccharide

(4 × 5 = 20)

IV. Classify lipids with suitable examples. Add a note on digestion and absorption of lipid.

(10 marks)



G 8545



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Reg. No......

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

First Year

BASIC MICROBIOLOGY AND IMMUNOLOGY

(2008 Admission onwards–Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

*Answer Sections A and B in **separate** answer books.*

Draw diagrams wherever necessary.

*Answer **all** questions.*

Section A (Basic Microbiology)

I. Answer in one word or sentence :

- a. Define Antisepsis.
- b. Mention a difference between Prokaryotes and Eukaryotes
- c. Name the parts of a flagellum
- d. _____ is the father of Chemotherapy
- e. _____ is the decoloriser used in Gram's staining

(5 × 1 = 5)

II. Write briefly on :

- a. Classification of micro organisms based on biohazards
- b. Inspissation
- c. Bacterial capsule
- d. Negative staining
- e. Cold sterilization

(5 × 3 = 15)





G 8545

III. Write notes on :

- a. Difference between exotoxins and endotoxins
- b. Testing of disinfectants
- c. Dry heat sterilization , .
- d. Methods of transmission of infection.

(4 × 5 = 20)

IV. Describe the different types of biosafety cabinets. What is its application in microbiology ?

(8 + 2 = 10)

Section B (Immunology)

I. Answer in one word or sentence :

- a. Endotoxins act by ————— pathway.
- b. Name a cell type which lacks HLA antigens.
- c. Perforins are produced by ————— cells.
- d. Type I hypersensitivity is mediated by ————— immunoglobulins.
- e. Lens antigens of the eye are a type of ————— antigens.

(5 × 1 = 5)

II. Write briefly on :

- a. Natural Killer cells
- b. Co-agglutination
- c. Adjuvants
- d. Incomplete antibodies
- e. Herd immunity

(5 × 3 = 15)





G 8545

III. Write notes on :

- a. Central lymphoid organs**
- b. Type III hypersensitivity reactions**
- c. Anaphylaxis**
- d. Auto immune diseases and the mechanisms of autoimmunity.**

(4 × 5 = 20)

IV. Classify immunoglobulins. Explain the structure and properties of IgG.

(3 + 7 = 10)



G 8546



Reg. No......

Name.....

**B.Sc. MEDICAL LABORATORY TECHNOLOGY (M.L.T.) DEGREE
EXAMINATION, APRIL 2025**

First Year

GENERAL AND CLINICAL PATHOLOGY

(2008 Admission onwards–Last and Final Special Mercy Chance)

Time : Three Hours

Maximum Marks : 100

Answer Sections A and B in separate answer books.

Draw diagrams wherever necessary.

Answer all questions.

Section A (General Pathology)

I. Answer in one word or sentence :

- a) Define Gangrene.
- b) What is Atrophy ?
- c) Name two sex chromosome abnormalities.
- d) Two precancerous lesion
- e) Types of gall stones

(5 × 1 = 5)

II. Write briefly on :

- a) Pathology of Leprosy
- b) Repair
- c) Necrosis
- d) Acute Inflammation
- e) Embolism

(5 × 3 = 15)





G 8546

III. Write short notes on :

- a) Hepatitis
- b) Calcification
- c) Syphilis
- d) Kwashiorkor

(4 × 5 = 20)

IV. What is Neoplasm ? Write the difference between Benign and Malignant Neoplasms.

(2 + 8 = 10)

Section B (Clinical Pathology)

I. Answer in one word or sentence.

- a) What is Isosthenuria?
- b) Normal range of fructose in semen
- c) Define Resolution
- d) Name two tests for the detection of Ketonuria
- e) Normal Liquefaction time of semen

(5 × 1 = 5)

II. Write briefly on :

- a) First aid in Alkali splashes in the eye
- b) Chromatic aberration
- c) Different types of ova in stool
- d) Crystals in urine
- e) Ehrlich's test

(5 × 3 = 15)





G 8546

III. Write short notes on :

- a) Main parts of a light microscope
- b) Pigments in urine
- c) Test for blood in urine
- d) Physical examination of Synovial fluid.

(4 × 5 = 20)

IV. Mention the collection and preservation of CSF. Describe the examination, staining and interpretation of CSF.

(2 + 2 + 2 + 4 = 10)

