

FIRST YEAR B.Sc. DEGREE (M.L.T.) EXAMINATION, APRIL 2021

Medical Laboratory Technology

Paper IV—BASIC MEDICAL LABORATORY SCIENCE AND HAEMATOLOGY—I

Time : Three Hours

Maximum : 100 Marks

*Answer all questions.**Draw diagrams wherever necessary.*

Essays :

1. Describe the methods of blood collection. Add a note on anticoagulants.

(5 + 5 = 10 marks)

2. Describe the principle and different parts of a light microscope. Mention the general rules for the safe use of a microscope.

(2 + 5 + 3 = 10 marks)

[2 × 10 = 20 marks]

Short Notes :

3. Erythrocyte sedimentation rate.
4. Methods of Haemoglobin estimation.
5. Preparation of blood smears.
6. Leishman stain.
7. Laboratory waste disposal.
8. Preparation and staining of Bone marrow smears.
9. Differential WBC count estimation.
10. Osmotic fragility test.
11. Care of laboratory ware and chemicals.
12. Automated blood cell counters.

(10 × 5 = 50 marks)

Answer briefly :

13. Erythrocyte indices.
14. Neutrophil.
15. Platelet count.
16. Detection of blood parasites.
17. Haematocrit.
18. Grading of Glasswares.
19. Hayem's fluid.
20. Supravital stains.
21. Decontamination of blood spill in lab.
22. Sickling test.

(10 × 3 = 30 marks)

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Paper III—BASIC MICROBIOLOGY AND IMMUNOLOGY

Time : Three Hours

Maximum : 100 Marks

*Answer all questions.
Draw diagrams wherever necessary.*

Essays :

1. Describe in detail the basic structure of an immunoglobulin. Add a note on monoclonal antibodies.
2. Discuss in detail the anatomy of a bacterial cell. Add a note on cell wall appendages.

(2 × 10 = 20 marks)

Short Essays :

3. Complement fixation test.
4. Halogens as disinfectants
5. Differential staining.
6. Filtration.
7. Bacterial exotoxins.
8. ELISA.
9. Hypersensitivity.
10. Artificial active immunity.
11. T-helper cells.
12. Smear preparation and fixation for staining to demonstrate bacteria.

(5 × 10 = 50 marks)

Short answers :

13. Carriers as source of infection.
14. Neutralization test.
15. Electroimmunodiffusion.
16. Superantigens.
17. Combined immunization.
18. Sterilization controls.
19. Acute phase proteins.
20. Segregation and disposal of laboratory wastes.
21. Fluorochrome staining.
22. EtO sterilisation.

(3 × 10 = 30 marks)

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Paper II—BIOCHEMISTRY—I

Time : Three Hours

Maximum : 100 Marks

*Answer all questions.**Draw diagrams wherever necessary.*

Essay :

1. Describe the different types of laboratory glass wares. Add a note on disposable.
(6 + 4 = 10 marks)
2. Define pH. Describe the different methods of determining the pH of the solution.
(2 + 8 = 10 marks)
[2 × 10 = 20 marks)

Short notes :

3. Common laboratory hazards.
4. Lipoproteins.
5. Transport across cell membrane.
6. Calibration of pipettes.
7. Enzymes digesting proteins.
8. First aid in laboratory.
9. Reactions of monosaccharides.
10. Types of balance in biochemistry lab.
11. Purification of water.
12. Classification of carbohydrates.

(10 × 5 = 50 marks)

Turn over

Answer briefly :

13. Donnan membrane equilibrium.
14. Uses of radioactive isotopes.
15. Iodine number.
16. Urine preservatives.
17. Structure of tRNA.
18. Cold centrifuge.
19. Functions of mitochondria.
20. Mucopolysaccharides.
21. Desicator.
22. Polyunsaturated fatty acids.

(10 × 3 = 30 marks)

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Paper I—ANATOMY AND PHYSIOLOGY

Time : Three Hours

Maximum : 100 Marks

Section A (Anatomy)

Essay :

1. With the help of a neat and labelled diagram, explain the external features of heart.

(4 + 6 = 10 marks)

Short notes on :

2. Broncho pulmonary segments.
3. Fallopian tube.
4. Internal Structure of kidney.
5. Interior of anal canal.
6. Ureter.

(5 × 5 = 25 marks)

Answer briefly :

7. Mast Cell.
8. Elastic cartilage.
9. Skeletal muscle.
10. Compact bone.
11. Name the cranial nerves.

(5 × 3 = 15 marks)

Section B (Physiology)

Essay :

1. Describe the uterine changes during a normal menstrual cycle. Mention the important hormones involved in each phase. What is LH surge ?

(4 + 4 + 2 = 10 marks)

Turn over

Write short notes on :

2. Antidiuretic hormone.
3. Functions of lung.
4. Properties of neuron.
5. Cardiac output and its regulation.
6. Counter current mechanism of kidney.

(5 × 5 = 25 marks)

Answer briefly :

7. Cardiac muscle.
8. Functions of thalamus.
9. Visual receptors.
10. Thyroid hormone.
11. Composition and functions of saliva.

(5 × 3 = 15 marks)