

**FOURTH YEAR B.Sc. DEGREE (PARAMEDICAL COURSES) EXAMINATION  
NOVEMBER 2020**

Medical Laboratory Technology

Paper XV—HISTOTECHNOLOGY AND CYTOGENETICS

(2012 Admissions)

Time : Three Hours

Maximum : 100 Marks

*Draw diagram wherever necessary.*

*Essays*

*Answer any two questions.*

1. Explain the various steps of tissue processing. Discuss the factors affecting processing.  
(6 + 4 = 10 marks)
2. Describe the preparation, fixation and storage of Museum specimens. Add a note on museum jars used for mounting.  
(7 + 3 = 10 marks)
3. Define Karyotyping. Describe banding techniques and applications of Karyotyping.  
(1 + 6 + 3 = 10 marks)  
[2 × 10 = 20 marks]

*Short Answers*

*Answer any ten questions.*

4. Types of Microtomes.
5. Classification and qualities of Fixatives.
6. Preparation and uses of Haematoxylin.
7. Decalcification.
8. Down syndrome.
9. Principle and technique to demonstrate reticulin in tissue.
10. Frozen section.
11. Floation of sections.
12. Faults and remedies in paraffin section cutting.
13. Automatic tissue processor.

14. Insitu hybridization.
15. Immunofluorescence technique.

(10 × 5 = 50 marks)

*Answer briefly.*

*Answer any **ten** questions.*

16. Progressive and regressive staining.
17. Double embedding.
18. Demonstration of lipids in tissue.
19. Honing.
20. Secondary fixation.
21. Blueing agents.
22. Mordants.
23. Methods to demonstrate melanin pigment in tissue.
24. Mountants.
25. Knife angles.
26. Section adhesives.
27. Technique of embedding.

(10 × 3 = 30 marks)

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**FOURTH YEAR B.Sc. (PARAMEDICAL COURSES) DEGREE EXAMINATION  
NOVEMBER 2020**

Medical Laboratory Technology

Paper XIV—MYCOLOGY, VIROLOGY AND APPLIED MICROBIOLOGY

(2012 Admissions)

Time : Three Hours

Maximum : 100 Marks

*Draw diagrams wherever necessary.  
Essay : Answer any two of the following.*

1. Classify fungi with examples based on morphology, sexual spores, and pathogenicity.  
Discuss Dimorphic fungi
2. Discuss in detail different methods for cultivation of viruses
3. List the infections which may be acquired by a lab worker as an occupational hazard. Discuss their modes of transmission and methods of prevention

(2 × 10 = 20 marks)

*Short Note : Answer any ten questions.*

4. Lab diagnosis of Dermatophytosis.
5. Screening tests for HIV.
6. Mycetoma.
7. Presumptive coliform count.
8. List 5 important properties of viruses which make them different from bacteria.
9. Cryptococcosis.
10. Lab diagnosis of human rabies.
11. Steps in Biomedical waste management.
12. Identification of Candida species.
13. Lab diagnosis of Dengue fever.
14. Staining techniques for demonstration of fungi in clinical specimens.
15. Morphology of Influenza virus.

(10 × 5 = 50 marks)

*Answer briefly any ten questions.*

16. Mycotoxins.
17. Viral inclusion bodies.
18. Exoantigen test.
19. Haemagglutination.
20. C-reactive protein.
21. Rhinosporidium.
22. Different types of fungal hyphae with examples.
23. List 6 arthropod borne viral diseases and their vectors.
24. Immunofluorescence.
25. Two specific pathogens looked for in milk and their detection methods.
26. Skin tests in diagnosis of fungal infections.
27. Immunoelectron microscopy.

(10 × 3 = 30 marks)

**FOURTH YEAR B.Sc. DEGREE (PARAMEDICAL COURSES) EXAMINATION  
NOVEMBER 2020**

Medical Laboratory Technology  
Paper XIII—BIOCHEMISTRY—IV  
(2012 Admissions)

Time : Three Hours

Maximum : 100 Marks

*Draw diagrams wherever necessary.  
Essays : Answer any two of the following.*

1. Define Automation. What are the different types of autoanalyzers ? Briefly describe each of them.  
(1 + 3 + 6 = 10 marks)
2. Explain the process of translation. Add a note on post translational modifications.  
(6 + 4 = 10 marks)
3. Explain the different kidney function tests.  
(10 marks)  
[2 × 10 = 20 marks]

Write short notes on any ten of the following :

4. QC materials.
5. Stimulation methods in gastric function tests.
6. Blood gas analysis.
7. Okazaki fragments.
8. Hypothyroidism.
9. Recombinant DNA technology.
10. Mechanism of action of steroid hormones.
11. Flame photometry.
12. Iron deficiency anemia.
13. Plasma buffers.
14. Enzymes in pancreatic diseases.
15. Estimation of drugs in blood.

(10 × 5 = 50 marks)

Answer briefly : Any *ten* questions :

16. Polymerase Chain Reaction.
17. Urinary VMA.
18. Hemolytic jaundice.
19. L : S ratio.
20. Malabsorption syndrome.
21. Southern blotting.
22. Preanalytical variables.
23. Precision versus accuracy.
24. Cirrhosis.
25. D-Xylose test.
26. DNA repair mechanisms.
27. HIAA.

(10 × 3 = 30 marks)

## FOURTH YEAR B.Sc. PARAMEDICAL COURSES EXAMINATION, APRIL 2021

Medical Laboratory Technology

Paper XV—HISTOTECHNOLOGY AND CYTOGENETICS

(2012 Syllabus)

Time : Three Hours

Maximum : 100 Marks

*Draw diagrams wherever necessary.*Essay. Answer any *two* questions :

1. Mention different components of connective tissue and stains used for their demonstration. Explain Masson's trichrome stain and its clinical use.  
(4 + 3 + 3 = 10 marks)
2. Define immune histochemistry. Write a routine IHC protocol. Mention the applications of IHC in Histopathology.  
(1 + 5 + 4 = 10 marks)
3. Define Karyotyping. Explain the method of metaphase preparation from Bone marrow.  
(2 + 8 = 10 marks)  
[2 × 10 = 20 marks]

Short Answers. Answer any *ten* questions :

4. Frozen sections.
5. Endogenous pigments.
6. Immunofluorescent techniques used in Histopathology.
7. Klinefelter's syndrome.
8. Decalcification.
9. Museum mounting technique.
10. Banding techniques.
11. Tissue processing for electron microscopy.
12. Different types of Haematoxylin.
13. Faults and remedies during section cutting.
14. FISH.
15. Barr Body.

(10 × 5 = 50 marks)

**Turn over**

Answer briefly. Answer any *ten* questions :

16. Double embedding.
17. Section adhesives.
18. PAS stain.
19. Dehydrating agents.
20. Demonstration of fungus.
21. Paraffin wax additives.
22. Zenker's fluid.
23. Honing.
24. Mordants.
25. Use of controls in staining procedures.
26. Cytogenetic abnormality in CML.
27. Formalin pigment removal.

(10 × 3 = 30 marks)

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**FOURTH YEAR B.Sc. PARAMEDICAL COURSES EXAMINATION, APRIL 2021**

Medical Laboratory Technology

Paper XIV—MYCOLOGY, VIROLOGY AND APPLIED MICROBIOLOGY

(2012 Syllabus)

Time : Three Hours

Maximum : 100 Marks

*Draw diagrams wherever necessary.*Essay. Answer any *two* of the following :—

1. Define dimorphic fungi. Discuss laboratory diagnosis of dimorphic fungal infections.
2. Describe the morphology of HIV. Describe in detail the laboratory diagnosis of HIV infection.
3. Name water borne pathogens. Describe in detail the collection, transport and processing of water samples.

(2 × 10 = 20 marks)

Short Notes. Answer any *ten* questions :

4. Laboratory diagnosis of Candida infections.
5. Cell cultures in virology.
6. Viral neutralization tests.
7. Automated blood culture techniques.
8. PCR and application.
9. Rubella.
10. Dengue fever.
11. Hepatitis B virus.
12. H1N1.
13. Antinuclear antibody test.
14. Dermatophytes.
15. Air sampling methods.

(10 × 5 = 50 marks)

Answer briefly any *ten* questions :

16. Zika virus.
17. Ophthalmic fungal infections.

**Turn over**

18. Piedra.
19. Recombinant vaccine.
20. Mucor mycosis.
21. Intravenous canula associated infections.
22. Viral inclusion bodies.
23. Epstein Barr virus.
24. Whey agglutination test.
25. Calcoflur white strain.
26. Restriction fragment length polymorphism.
27. Prevention of laboratory acquired infections.

(10 × 3 = 30 marks)

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**FOURTH YEAR B.Sc. PARAMEDICAL COURSES EXAMINATION, APRIL 2021**

Medical Laboratory Technology  
Paper XIII—BIOCHEMISTRY—IV  
(2012 Syllabus)

Time : Three Hours

Maximum : 100 Marks

*Draw diagrams wherever necessary.*Essay. Answer any *two* of the following :—

1. Discuss the different types of auto analyzers used in the biochemistry lab. Mention their merits and demerits of each of them.
2. Describe the synthesis and importance of Catecholamines. Write briefly the estimation of urinary VMA.
3. Describe the synthesis and secretion on thyroid hormones. Mention briefly the thyroid function tests.

(2 × 10 = 20 marks)

Write Short Notes on any *ten* of the following :

4. Estimation of serum Copper.
5. Functions and estimation of calcium.
6. Role of carobic anhydrase.
7. Respiratory Acidosis.
8. Test to assess fetal lung capacity.
9. DNA repair mechanism.
10. Operon concept of gene Regulation.
11. Quality control charts.
12. Southern Blot Techniques.
13. Liver function tests.
14. Synthesis of sex hormones.
15. Urinary 5 HIAA.

(10 × 5 = 50 marks)

Answer briefly. Answer any *ten* questions :

16. Functions of Selenium.
17. Anion gap.
18. Practicability criteria of analytical methods.
19. Messenger RNA.
20. Phase one reactions in detoxification.
21. Restriction endonucleases.

**Turn over**

22. Schilling test.
23. D-xylose test.
24. Sources of iron.
25. Normal value of Electrolytes.
26. Screening test of barbitone.
27. Name three hormones acting through Adenyl cyclase.

(10 × 3 = 30 marks)

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