Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 13-May-2025

[Time: 3 Hours] **[Max. Marks: 100]**

BIOCHEMISTRY – I (RS3)
Q.P. CODE: 8034

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.
Section A and section B are to be written in same Answer Book

Section A - Clinical Biochemistry [50 marks]

Answer All The Questions **10 X 10 = 100 Marks**

1. Explain the biochemistry, functions and clinical significance of *albumin. Co*mment on the analytical considerations and laboratory evaluation of serum albumin.

2. What is meant by self-monitoring of blood glucose? Discuss the working, care and maintenance of glucometers. Add a note on the limitations of glucometers.

3. What are the indications for ordering xylose absorption test? How is it conducted? Discuss in detail the measurement procedure and interpretation of results.

4. Describe the sample collection, transport, and analysis of arterial blood gases. Add a note on the biological reference intervals and preanalytical variables.

5. Nutritional importance of carbohydrates and proteins.

Section B – Laboratory Principles and Techniques [50 marks]

6. Describe the principle and applications of agarose gel electrophoresis. Explain the procedure of separation of serum proteins using this technique. Add a note on the advantages and disadvantages.

7. Give a detailed account of the maintenance of records and documentation in a clinical laboratory.

8. Explain different types of internal quality control materials. Describe the procedure for in-house QC preparation, validation and storage.

9. Define risk. Discuss the contributors to pre-analytical and analytical laboratory risk and the measures to minimize them.

10. Discuss the specifications for three types of water grades used in clinical laboratory. Enumerate the water purification technologies and comment on any one of them.

* * * * *

Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 09-May-2025

[Time: 3 Hours] **[Max. Marks: 100]**

MICROBIOLOGY – I (RS3)
Q.P. CODE: 8036

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.
Section A and section B are to be written in same Answer Book

Section A – clinical Microbiology [50 marks]

Answer All The Questions **10 X 10 = 100 Marks**

1. Define and classify sterilization with examples. Explain in detail about sterilization by autoclave.
2. Bacterial cell.
3. Describe the morphology, life cycle, pathogenicity and lab diagnosis of Entamoebahistolytica.
4. Dermatophytes.
5. Poliomyelitis.

Section B – Immunology and Molecular Biology [50 marks]

6. Define hypersensitivity reaction. Explain type 1 and type 2 hypersensitivity reactions.
7. Describe innate immunity in detail.
8. Mechanism and functions of flow cytometry.
9. Write a note on FISH and CGH.
10. DNA gel electrophoresis.

* * * * *

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 13-May-2025

[Time: 3 Hours] **[Max. Marks: 100]**

BIOCHEMISTRY - PAPER – I (RS3)
Q.P. CODE: 8037

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.

Answer All The Questions **10 X 10 = 100 Marks**

1. Explain the role of tumor markers in cancer diagnosis and management with examples.
2. Write briefly on collection, composition and analysis of cerebrospinal fluid.
3. Discuss the principle and applications of potentiometry and amperometry.
4. Discuss the structure of adult haemoglobin and explain Hemoglobinopathies and its lab diagnosis.
5. Define POCT, giving examples write their utility in patient care.
6. Principle, instrumentation and applications of Gel filtration chromatography.
7. Write the guidelines and procedure for new lab equipment procurement and its validation.
8. Discuss on renal calculi composition and analysis.
9. Explain the causes and tests done in the lab diagnosis of jaundice.
10. Explain working of a clinical biochemistry laboratory. Add a note on soft skills in patient handling.

******

Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 15-May-2025

[Time: 3 Hours] **[Max. Marks: 100]**

HAEMATOLOGY AND BLOOD TRANSFUSION – I (RS3)
Q.P. CODE: 8035

Your answers should be specific to the questions asked.
Draw neat labeled diagrams wherever necessary.
Section A and section B are to be written in same Answer Book

Section A – Haematology and clinical pathology [50 marks]

Answer All The Questions **10 X 10 = 100 Marks**

1. Write in detail about red cell indices.
2. Describe the cytochemistry in acute leukemia.
3. Classify hemolytic anemias. Explain pathogenesis and lab diagnosis of Hemolytic anemia.
4. Discuss an etiopathogenesis of hypercoagulable states with lab diagnosis.
5. Explain chemical examination of urine.

Section B – Immunopathology and Medical Genetics [50 marks]

6. Write about the pathology of tuberculosis.
7. Barr body identification.
8. Definition and example of numerical chromosomal abnormalities. Explain any one.
9. Discuss type I hypersensitivity.
10. Describe the pathogenesis and laboratory diagnosis of Rheumatoid Arthritis.

Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 24-Oct-2025

Time: 3 Hours **Max. Marks: 100**

BIOCHEMISTRY – I (RS-3)
Q.P. CODE: 8034

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary
Section A and section B are to be written in same Answer Book

Section A - Clinical Biochemistry [50 marks]

Answer All The Questions **10 X 10 = 100 Marks**

1. What are radioactive isotopes? Explain the diagnostic and therapeutic uses of radioisotopes with examples.
2. Write briefly on (a) Dietary fibre (b) Specific Dynamic action (c) Basal Metabolic rate
3. Oral Glucose Tolerance Test – Indications, procedure and interpretation
4. Discuss the structural organization of proteins with examples.
5. Write the composition and function of Low Density Lipoprotein. Explain the formation and fate of this lipoprotein.

Section B – Laboratory Principles and Techniques [50 marks]

6. Guidelines for waste disposal generated in clinical laboratory.
7. Explain the principle, instrumentation and applications of Atomic absorption spectrophotometry.
8. Principle and applications of ion sensitive electrodes.
9. Write the salient aspects to be considered while designing laboratory. Add a note on factors affecting productivity of a laboratory.
10. Discuss the pre analytical, analytical and postanalytical errors in the laboratory with examples.

* * * * *

Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 29-Oct-2025

Time: 3 Hours **Max. Marks: 100**

MICROBIOLOGY – I (RS-3)
Q.P. CODE: 8036

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary
Section A and section B are to be written in same Answer Book

Section A – Clinical Microbiology [50 marks]

Answer All The Questions **10 X 10 = 100 Marks**

1. Write in detail about morphology, pathogenesis and lab diagnosis of T. Pallidum
2. Define Nosocomial infections. List the causative agents; describe mode of transmission and prophylaxis of hospital acquired infections
3. Explain in detail about the pathogenesis and lab diagnosis of dermatophytes
4. Define and classify sterilization and disinfection. Write in detail about disinfecting agents
5. Enumerate the arboviruses. Write in detail about pathogenesis and laboratory diagnosis of Dengue infection

Section B – Immunology and Molecular Biology [50 marks]

6. Define and classify immunity. Write in detail about innate immunity
7. Describe the structure and replication of DNA
8. With a neat labelled diagram, explain the structure of immunoglobulin. Add a note on abnormal immunoglobulins
9. Define and classify hypersensitivity. Write in detail about type I hypersensitivity
10. Define and classify autoimmunity. Describe the mechanism of autoimmunity