Rajiv Gandhi University of Health Sciences, Karnataka

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

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

MICROBIOLOGY – PAPER – I (RS-3)
Q.P. CODE: 8047

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. Laboratory diagnosis and prophylaxis of tetanus
2. Hospital acquired infections
3. Helicobacter pylori – pathogenicity and laboratory diagnosis
4. Biomedical waste management
5. Serodiagnosis of syphilis
6. Brucellosis
7. Precipitation reactions and their applications
8. Type IV hypersensitivity
9. Toxins and enzymes produced by Staphylococcus aureus
10. Alternate complement pathway

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Second Year M.Sc. (MLT) Degree Examination - 12-May-2025

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

MICROBIOLOGY – PAPER– II (RS-3)
Q.P. CODE: 8048

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. Pathogenesis and laboratory diagnosis of Human Immunodeficiency Virus
2. Enumerate opportunistic mycoses. Discuss pathogenicity and laboratory diagnosis of Cryptococcosis
3. Stool concentration methods
4. Antigenic variations seen in Influenza viruses
5. Laboratory diagnosis of Malaria
6. Dermatophytosis
7. Wuchereria bancrofti
8. Viral tissue cultures
9. Serological markers of Hepatitis B virus infection and its interpretation
10. Cysticercus cellulosae

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.

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Second Year M.Sc. (MLT) Degree Examination - 14-May-2025

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

HAEMATOLOGY and BLOOD TRANSFUSION - PAPER – I (RS3)
Q.P. CODE: 8042

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. Define thalassemia. Explain Beta thalassemia
2. Define leukaemia. Explain Acute myeloid Leukemia
3. Write the classification, laboratory findings of hemolytic anemia
4. Classify myeloproliferative neoplasm. Explain essential Thrombocythemia
5. Explain normal hemostasis
6. Quality control in haematology
7. Discuss Hemophilia A and its laboratory diagnosis
8. **Write t6he methods, procedure, clinical significances of Packed cell volume testing**
9. Write the procedure, sites, indication and contraindication of Bone Marrow biopsy
10. Define haematopoesis and write the regulation of Haematopoesis

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Rajiv Gandhi University of Health Sciences, Karnataka

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

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

BIOCHEMISTRY - PAPER – II (RS3)
Q.P. CODE: 8038

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. Discuss differential diagnosis and management of diabetes mellitus and add a note on glycated hemoglobins.
2. Explain in detail about aminoaciduria and its clinical implications.
3. Describe the different methods in measuring lipids and lipoproteins and add a note on disorders of lipoprotein metabolism.
4. Discuss the disorders of nucleic acid metabolism.
5. Explain enzyme inhibition in detail. Add a note on Isoenzymes.
6. Describe the role of antioxidants in detail.
7. Write the biochemical functions and disorders of calcium.
8. Explain the cause and diagnosis of inborn errors of carbohydrates.
9. Describe Turbidimetry and nephelometry.
10. Discuss the metabolism of cholesterol in detail.

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II Year M. Sc Medical Imaging Technology - 22-May-2025

[Time: 3 Hours] **[Max. Marks: 80]**

Advanced Technique and Instrumentation of MRI
Q.P. CODE: 9545

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

Answer All The Questions **08 X 10 = 80 Marks**

1. Explain MR angiographic imaging in detail.
2. Describe T_1, T_2 and proton density weighting and contrast.
3. Write a note on spatial resolution in MRI.
4. Write a note on perfusion MR imaging and mention its clinical applications.
5. What is EPI? Explain the use of EPI in clinical MRI.
6. Write a note on chemical shift artifact.
7. How is hydrogen spectroscopy performed on a clinical MR scanner?
8. Write a detail note on MR artifacts.

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year M. Sc Medical Imaging Technology - 20-May-2025

[Time: 3 Hours] **[Max. Marks: 80]**

NUCLEAR MEDICINE IMAGING TECHNIQUES
Q.P. CODE: 9549

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

Answer All The Questions **08 X 10 = 80 Marks**

1. Explain reconstruction of fan beam, cone beam and pin hole SPECT data and 3D PET data.
2. Discuss in detail about role of CT in PET CT.
3. Role of nuclear medicine in suspected case of pulmonary thromboembolism
4. Cyclotron
5. Discuss about a) PMT and b) APD.
6. Properties of α, β, γ, rays in detail
7. Principle of tracer technique in radio pharmacy
8. Radiation quantities and units

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Second Year M.Sc. (MLT) Degree Examination - 28-Oct-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. **Write about clinical utility of cardiac markers.**
2. Heavy metal poisoning in children.
3. Discuss the diagnostic considerations of Liver diseases.
4. Explain about clinical evaluation of Diarrheal syndrome.
5. Usefulness of placental hormones in normal and abnormal pregnancy.
6. Working of clinical biochemistry laboratory.
7. Explain potentiometer in detail.
8. **Write about various analytical variables in QC procedures.**
9. Discuss the mechanism of action of drugs and clinical utility of TDM.
10. Discuss Dry chemistry in clinical laboratory.

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 30-Oct-2025

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

BIOCHEMISTRY - PAPER – II (RS-3)
Q.P. CODE: 8038

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. Define free radicals. Explain the mechanism involved in the production of free radicals. Add a note on diseases associated with free radicals and its implications
2. Enumerate the dietary sources, RDA, absorption, transport, storage, functions and disorders of iron
3. Describe degradation of purine nucleotides and add a note on causes, symptoms and diagnosis of Gout
4. Define enzymes. Explain the mechanism of enzyme action. Add a note on the role of enzymes as an analytical reagent
5. Describe the chemistry, sources, RDA, absorption, biochemical functions and deficiency manifestation of vitamin A
6. Explain the principle of turbidimetry and nephelometry. Describe nephelometry in detail and write its clinical application
7. Classify Lipoproteins based on ultracentrifugation and electrophoretic mobility. Discuss the metabolism of Low-Density Lipoprotein (LDL). Add a note on atherosclerosis
8. Discuss the various methods used for determining the blood glucose and glycated hemoglobins. Add a note on self-monitoring of blood glucose
9. Outline the metabolic pathway of phenyl alanine and tyrosine. Add a note on specialized products formed from phenyl alanine and tyrosine and their importance
10. Define cancer. Explain the various physical, chemical and biological factors which influences the convertion of protooncogenes to oncogenes

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Second Year M.Sc. (MLT) Degree Examination - 28-Oct-2025

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

HAEMATOLOGY and BLOOD TRANSFUSION - PAPER – I (RS3)
Q.P. CODE: 8042

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. Define plasma cell neoplasm. Explain on multiple myeloma
2. Reticulocyte count-principle, procedure, normal values. Write on reticulocyte production index
3. Define the morphology, cytogenetics and molecular features on Burkitts Lymphoma
4. Anticoagulants used in haematology
5. Write a note and clinical presentation on G6PD deficiency
6. Write the principle, stages, normal range and clinical significance of ESR
7. Write on metabolism, absorption and laboratory diagnosis of iron deficiency anemia
8. Explain and write on laboratory diagnosis of hemolytic disease of newborn
9. Classify anemia. Write the laboratory diagnosis of hereditary spherocytosis
10. Write the etiology, pathogenesis, laboratory findings on immunohemolytic anemia

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 30-Oct-2025

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

HAEMATOLOGY and BLOOD TRANSFUSION - PAPER – II (RS3)
Q.P. CODE: 8043

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. Classify blood components. Write preparation of platelet components with the indication in detail.
2. Write in detail about autologus transfusion.
3. Methods of blood collection.
4. Write on transfusion reactions with laboratory findings.
5. Tissue banking in detail.
6. Quality control and quality assurance in blood bank.
7. Indirect coombs test with the significance.
8. Preparation of cryoprecipitate and indication in detail.
9. Drugs control regulation in blood bank.
10. Describe transfusion transmitted diseases.

Second Year M.Sc. (MLT) Degree Examination - 28-Oct-2025

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

MICROBIOLOGY – PAPER – I (RS3)
Q.P. CODE: 8047

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 in detail structure and function of Major histocompatibility complex.
2. Enumerate organism causing diarrhae. Explain pathogenesis and laboratory diagnosis of cholera.
3. Name the zoonotic diseases. Describe the laboratory diagnosis of anthrax.
4. Define and classify immunity. Explain in detail about acquired immunity.
5. Explain pathogenicity and laboratory diagnosis of leptospirosis.
6. Explain in detail pathogenesis and laboratory diagnosis of Gonorrhea.
7. Write in detail principle, types and application of ELISA.
8. Explain in detail pathogenicity and laboratory diagnosis of diphtheria. Add a note on Prophylaxis.
9. Preparation and applications of monoclonal antibodies.
10. Principle, steps and applications of Polymerase chain reaction.

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 30-Oct-2025

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

MICROBIOLOGY – PAPER– II (RS3)
Q.P. CODE: 8048

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. Write in detail morphology and pathogenesis of Rabies virus. Add a note on prophylaxis.
2. Lifecycle, pathogenesis and laboratory diagnosis of toxoplasmosis.
3. Explain pathogenesis and laboratory diagnosis of chromoblastomycosis.
4. Laboratory diagnosis of measles virus. Add a note on MMR vaccine.
5. Lifecycle and pathogenesis of Enterobius vermicularis. Add a note on NIH swab.
6. Classify Arbovirus. Explain in detail pathogenesis and laboratory diagnosis of Dengue.
7. Explain in detail Life cycle, pathogenesis and laboratory diagnosis of Echinococcus granulosus.
8. Explain in detail pathogenicity and laboratory diagnosis of Parvovirus B19.
9. Lifecycle of pathogenesis and laboratory diagnosis of Ancylostoma duodenale.
10. Enumerate organisms causing opportunistic infection. Explain in detail pathogenesis and laboratory diagnosis of Aspergillus species.