Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 17-May-2023

[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. Laboratory evaluation of Tumor markers.
2. Synthesis of porphyrins and laboratory diagnosis of porphyrias.
3. Specimen collection and biochemical analysis **of** urine.
4. Discuss about hormonal assay use for Thyroid function tests. Add a note on anti – TPO.
5. Explain renal replacement therapy in detail.
6. Types of automation and steps in automated analysis.
7. Describe about paper chromatography.
8. Pre analytical variables in quality assurance programme.
9. Laboratory information system used in clinical laboratory.
10. Write in detail about mechanism of action of drugs.

Second Year M.Sc. (MLT) Degree Examination - 19-May-2023

[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. Explain **Inborn** errors of carbohydrate metabolism.
2. Discuss in detail about separation of plasma proteins based on electrophoretic mobility. Add a note on its disorders.
3. Write the classification of lipoproteins and add a note on coronary heart diseases.
4. Explain different types of RNA with labelled diagram.
5. Discuss the factors affecting enzyme activity and add a note on coenzymes.
6. Write sources, RDA, biochemical functions and clinical manifestations of vitamin A
7. Describe the metabolism and functions of iron in detail.
8. Discuss free radicals and antioxidants.
9. Explain photometry and its standardization.
10. Explain urea cycle in detail.

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 17-May-2023

[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. Disseminated intravascular coagulation
2. Idiopathic thrombocytopenic purpura
3. Explain the principle, working, indication of flowcytometry
4. Explain the etiology and blood picture of chronic myeloid leukaemia
5. Add a note on pathogenesis and lab diagnosis of sickle cell anemia
6. Coombs test
7. Write the definition, bone marrow findings, laboratory diagnosis of megaloblastic anemia
8. Osmotic fragility
9. Define pancytopenia. Discuss on aplastic anemia
10. Explain various methods of haemoglobin estimation

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 19-May-2023

[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. Define Apheresis. Write the indication and methodology of Apheresis.
2. Name the various blood group system. Discuss the methods of blood grouping
3. Explain Du testing and its clinical significance
4. Disposal of waste and biologically hazardous substances in blood bank
5. Discuss on stem cell processing and the storage
6. Define blood transfusion reaction and write a note on hemolytic transfusion reaction
7. Discuss the different sections in a blood Bank and its organization.
8. Quality assurance in blood bank
9. Schematic diagram on blood processing in blood bank. Add a note on cryoprecipitate preparation, storage and its application
10. History of blood transfusion medicine

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 17-May-2023

[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. Define and classify antigen-antibody reactions. Explain in detail about Precipitation reactions.
2. Give brief account of immunodeficiency diseases.
3. Describe pathogenesis and laboratory diagnosis of Treponema pallidum.
4. Define and classify Hypersensitivity. Explain type I hypersensitivity.
5. Enumerate the organisms causing zoonoses. Write in detail about pathogenesis and laboratory of Leptospirosis.
6. Define immune response. Discuss in detail about cell-mediated immune response.
7. Enumerate the causative agents of respiratory tract infections. Write in detail about pathogenesis, laboratory diagnosis and prophylaxis of **Corynebacterium diphtheria**
8. Write in detail about pathogenesis, laboratory diagnosis and prophylaxis of Haemophilus influenzae.
9. Give a brief account of automated and semiautomated systems in Microbiology.
10. Describe pathogenesis and laboratory diagnosis of Staphylococcus aureus. Add a note on MRSA.

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 19-May-2023

[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. Define and classify Dermatophytes. Add a note on pathogenesis and laboratory diagnosis.

2. Explain the morphology, pathogenesis and laboratory diagnosis of HIV.

3. Give a brief account of morphology, life cycle, pathogenesis and laboratory diagnosis of Enterobius vermicualris.

4. Write in detail about life cycle, pathogenesis and laboratory diagnosis of Ascaris lumbricoides.

5. Classify cestodes. Discuss the life cycle, pathogenesis and laboratory diagnosis of Taenia solium.

6. Describe the morphology, pathogenesis and laboratory diagnosis of Poliovirus. Add a note on its prophylaxis.

7. Write in detail about life cycle, pathogenesis and laboratory diagnosis of Wuchereria bancroftii.

8. Write in detail about the structure, pathogenesis and laboratory diagnosis of Varicella Zoster virus.

9. Name the aetiological agents of Malaria. Write in detail about morphology, life cycle, pathogenesis and laboratory diagnosis of falciparum malaria.

10. Explain in detail about pathogenesis and laboratory diagnosis of Zygomycosis.

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 17-May-2023

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

BIOCHEMISTRY – II
Paper - I (RS-2)
Q.P. CODE: 9814

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. Discuss in detail about Biliary Tract Diseases.
2. Explain the types and diagnosis of jaundice. Add a note on Gall stones.
3. Explain new born screening and Heavy Metal Poisoning in children.
4. Describe the analytical methods for assessment of renal function and add a note on creatinine clearance test.
5. Classify Tumor Markers with example and write about their evaluation.

Section B – Laboratory Management [50 marks]

6. Explain Total Laboratory Automation, types of automation and various steps involved in automation.
7. Explain the principle and applications of chromatography and add a note on Thin layer chromatography.
8. Explain mechanism and excretion of drugs. Add a note on drugs of abuse.
9. Laboratory information systems.
10. Write about role of lab personnel in Patient management and Handling.

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 19-May-2023

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

BIOCHEMISTRY – II
Paper – II (RS-2)
Q.P. CODE: 9815

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 metabolism of aromatic amino acids. Add a note on their associated inborn errors of metabolism.
2. Write the sources, RDA, functions and disease states of Calcium. Write a note on calcium homeostasis.
3. Fluorometry.
4. Diabetes mellitus.
5. Write the sources, RDA, Chemistry, Function and Deficiency of Vitamin B12.
6. What are Isoenzymes? Write about their diagnostic importance.
7. Diagnosis of Lipid metabolism disorders by lipoprotein electrophoresis.
8. Classify Plasma proteins and add a note on their clinical significance.
9. Explain the metabolic pathway of Glucose. Add a note on it energetics and regulation.
10. Write a note on Metabolism and Absorption of Iron.

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 17-May-2023

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

MICROBIOLOGY – II
Systematic Bacteriology, Applied Microbiology and Immunology
PAPER-I (RS-2)
Q.P. CODE: 9816

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. Typhoid fever pathogenesis and its laboratory diagnosis.
2. Describe laboratory diagnosis of gas gangrene.
3. Define sterilization and disinfection. Name the chemical agents with examples and describe role of CSSD in the hospital.
4. Describe different methods of antibiotic susceptibility testing by the manual method and its clinical application in a microbiology laboratory.
5. Nosocomial infections – Definition, common bacterial etiological agents and its method of prevention.
6. Define and classify hypersensitivity reactions. Describe Type 4 reaction.
7. Discuss laboratory diagnosis and prevention of MRSA.
8. Principle and applications of vitek.
9. IgM antibodies – structure, properties and functions.
10. Immunofluorescence – Principle, types and applications.

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 19-May-2023

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

MICROBIOLOGY – II
Virology, Mycology and Parasitology
PAPER-II (RS-2)

Q.P. CODE: 9817

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. Describe the morphology, life cycle, pathogenicity and the laboratory diagnosis of Wuchereria bancrofti.
2. Describe the laboratory diagnosis of Ascaris lumbricoides.
3. Life cycle and pathogenicity of Taenia solium.
4. Describe the pathogenesis and laboratory diagnosis of Herpes simplex virus.
5. Describe pathogenesis and laboratory diagnosis of HIV.
6. Describe the morphology, antigenic structure, laboratory diagnosis of H1N1.
7. Describe the laboratory diagnosis of Histoplasmosis.
8. Mycotoxicosis.
9. Stool Concentration techniques.
10. Life cycle and laboratory diagnosis of Entamoeba histolytica.

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 17-May-2023

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

HAEMATOLOGY AND BLOOD TRANSFUSION – II
Paper – I (RS-2)
Q.P. CODE: 9818

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 the methods of estimation of bleeding time with their normal reference ranges. List the causes of prolonged Bleeding time.

2. Explain the structure of Platelets with a neat labelled diagram. Add a note on role of platelets in normal hemostasis.

3. Enumerate the causes and discuss the lab diagnosis of DIC.

4. Describe in detail the pathogenesis and lab diagnosis of Hemophilia A.

5. Discuss the clinical features, pathogenesis and lab diagnosis of Glanzmanns thrombasthenia.

6. What is Quality control and its importance? Discuss the Quality control in Coagulation testing.

7. Describe in detail the types, clinical features and lab diagnosis of Immune thrombocytopenia (ITP).

8. Explain the principle and applications of Flowcytometry in hematology.

9. Describe the principle, procedure of PT. Add a note on importance of INR. List causes of prolonged PT.

10. Bernard Soulier syndrome.

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 19-May-2023

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

HAEMATOLOGY AND BLOOD TRANSFUSION – II

Paper – II (RS-2)

Q.P. CODE: 9819

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 about transfusion reaction.
2. Discuss in detail about apheresis.
3. Pre transfusion testing and blood collection in blood bank.
4. Write different types of blood components. Write briefly about the preparation of FFP.
5. Compatibility testing.
6. Quality control in blood bank.
7. Cord Blood banking.
8. Autologous transfusion.
9. Paternity Testing.
10. Transfusion transmitted disease.

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Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 23-Nov-2023

[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 bilirubin metabolism and its disorders.
2. Discuss renal replacement therapy.
3. Discuss the enzymes in digestion and evaluation of malabsorption and diarrhoeal syndromes.
4. Discuss the types of automation and steps in automated analysis.
5. Explain L J chart and Westgard rules in total quality management.
6. Describe the validation of biological reference.
7. Discuss the laboratory evaluation of gall stones.
8. Discuss newborn screening in detail.
9. Explain drugs of abuse.
10. Write the definition and classification of chromatography. Explain paper chromatography in detail.

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Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 28-Nov-2023

[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. Explain the role of hormones in blood glucose regulation. Write briefly on mechanism of action of insulin.

2. Enumerate the functions of plasma proteins and explain the separation by agarose gel electrophoresis technique.

3. Explain the factors affecting enzyme activity with examples.

4. Explain the competitive inhibition of enzymes and its applications.

5. Classify antioxidants. Explain the role of antioxidants in free radical scavenging.

6. Discuss the salvage pathways of purines and the disorders associated with it.

7. Explain the role of oncogenes and anti-oncogenes in cancer with examples.

8. Write the sources, mechanism of absorption, transport and storage and iron in the body. Add a note on Hemosiderosis.

9. Composition and function of high density lipoprotein. Explain the role of LCAT in association with HDL metabolism.

10. Explain the dietary sources, functions and deficiency features of Vitamin A.

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 23-Nov-2023

[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. Describe the different RBC indices, their calculation and significance.
2. Describe the procedure, preparation and staining of Bone marrow aspiration smears.
3. Discuss the blood picture and bone marrow picture in Megaloblastic Anemia.
4. Describe the laboratory investigations of multiple Myeloma.
5. Classify of acute Leukemias and discuss lab diagnosis of acute Lymphoblastic Leukemia.
6. Classify hemolytic anemias. Describe the procedure for estimation of reticulocyte count.
7. Describe the procedure and indications for prothrombin time and International Normalised Ratio (INR).
8. Describe the laboratory work up of Hemophilia A.
9. Classify Bleeding Disorders. Describe the laboratory finding in Immune Thrombocytopenic Purpura (ITP).
10. **Disseminated Intravascular Coagulation (DIC)**

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 28-Nov-2023

[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. Discuss the various anticoagulants used in blood bank. Write briefly on changes that occur in stored blood.
2. Discuss the blood components and indications.
3. Paternity testing
4. Disposal of waste and biologically hazardous substances in the blood bank.
5. Investigation of transfusion transmitted diseases.
6. Criteria for blood donor.
7. Exchange transfusion.
8. Cord blood banking.
9. Direct coombs test with the significance.
10. Haemolytic disease of newborn.

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Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 23-Nov-2023

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 of diphtheria
2. Normal microbial flora of the human body
3. Explain morphology, diseases caused and laboratory diagnosis of S.aureus
4. Immunofluorescence test
5. Classical pathway of complement system
6. Recent diagnostic techniques used in microbiology laboratory
7. Laboratory diagnosis of brucellosis
8. Define hypersensitivity. Explain delayed hypersensitivity
9. Classification and pathogenesis of V.cholerae
10. Laboratory diagnosis of Haemophilus influenzae

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 28-Nov-2023

[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. Classify cestodes. Explain the life cycle, pathogenesis and laboratory diagnosis of Taenia solium.

2. Explain in detail laboratory diagnosis and immunoprophylaxis of Rabies virus.

3. Morphology and lifecycle, pathogenesis, lab diagnosis of Entamoeba histolytica.

4. Enumerate malaria parasite. Explain in detail about life cycle and laboratory diagnosis of Plasmodium vivax.

5. Write in detail structure, pathogenesis and laboratory diagnosis of Hepatitis B virus.

6. Write in detail life cycle and pathogenesis and lab diagnosis of Wuchereria bancrofti.

7. Explain in detail recent advances in diagnosis of viral infections.

8. Enumerate the etiology of opportunistic fungal infections. Explain the laboratory diagnosis of Candidiasis.

9. Explain pathogenicity and lab diagnosis of Herpes simplex viruses.

10. **Classify subcutaneous mycosis. Explain in detail about pathogenesis and laboratory diagnosis of Mycetoma.**

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Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 07-Dec-2023

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

HAEMATOLOGY AND BLOOD TRANSFUSION – II

Paper – I (RS-2)

Q.P. CODE: 9818

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. Bernard soulier syndrome.
2. Protein C and Protein S – importance.
3. Antiphospholipid antibody syndrome.
4. Flow cytometry – principle and indications.
5. Immune Thrombocytopenic Purpura.
6. Von Willebrand's disease.
7. Platelet function disorders.
8. Investigations for coagulation disorders.
9. Hemophilia A & B
10. Normal Hemostasis.

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 11-Dec-2023

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

HAEMATOLOGY AND BLOOD TRANSFUSION – II
Paper – II (RS-2)
Q.P. CODE: 9819

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. Describe history of transfusion medicine.
2. Describe the indications for blood transfusion.
3. Discuss ABO blood group system. explain forward and reveres blood grouping,
4. Compatibility testing.
5. Describe transfusion transmitted disease.
6. Describe blood transfusion in auto immune hemolytic anemia.
7. Discus haemapheresis.
8. Stem cell transplantation.
9. Describe technical advances and future trends in transfusion medicine.
10. Explain quality assurance in blood bank.

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