Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 16-May-2023

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. Write briefly on diabetes mellitus and add a note on glucometer
2. Give an account on protein structure and determination of primary structure
3. Laboratory evaluation of NPN
4. Write about separation of plasma proteins electrophoresis
5. Write briefly about arterial blood gas analysis

Section B – Laboratory Principles and Techniques [50 marks]

6. Give an account on laboratory hazards
7. Explain about the working and standardization of spectrophotometer
8. External quality assessment schemes an proficiency testing programmes
9. Write about Osmometry
10. Write on risk management in laboratory. Add a note on training of technical staff

Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 18-May-2023

[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**

1. Discuss the blood picture and lab diagnosis of β-thalassemia major. Add a note pathogenesis.
2. Discuss the FAB Classification of acute **leukemia.**
3. Enumerate the causes of thrombocytopenia and add a note on platelet counting methods.
4. Describe hematopoiesis with neat labelled diagrams.
5. Discuss the collection and examination of sputum sample.

Section B – Immunopathology and Medical Genetics [50 marks]

6. Discuss the type 2 hypersensitivity in detail.
7. Mention inborn errors of metabolism and describe **Gaucher's** disease.
8. What is autoimmunity? Classify autoimmune diseases. Discuss the pathogenesis and labo investigation of any one of them.
9. Discuss sample collection and procedure of Karyotyping.
10. Classify genetic disorders. Describe chromosomal abnormalities.

Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 20-May-2023

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. Explain in detail about specimen collection and transportation of clinical specimen. Add a note on universal precautions
2. Write in detail about pathogenesis and laboratory diagnosis of enteric fever
3. Explain in detail about diffusion methods of antibiotic sensitivity testing
4. Describe the pathogenicity and laboratory diagnosis of amoebic dysentery
5. Write in detail about morphology, pathogenesis, lab diagnosis and prophylaxis of Poliviru

Section B – Immunology and Molecular Biology [50 marks]

6. Describe in detail about humoral immune response
7. Define and classify antigen antibody reactions. Write in detail about agglutination reactior
8. Write in detail about recombinant DNA technology. Add a note on its application in medici
9. Describe the mechanism of autoimmunity
10. Define and classify vaccines. Write in detail about each type f vaccine with examples

Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 16-May-2023

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

BIOCHEMISTRY – I
(RS-2)
Q.P. CODE: 9811

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 types, clinical manifestations and management of Diabetes Mellitus. Write the procedure and interpretation of OGTT.
2. What are plasma protein ? Write their functions & significance name 3 conditions where Albumin levels are decreased.
3. Explain in detail about Water Electrolyte balance and add a note on disorders.
4. Explain the collection, preservation and disposal of blood specimen.
5. Write the electron transport chain and its significance.

Section B – Laboratory Principles & Techniques [50 marks]

6. Explain the principle, types and applications of chromatography. Elaborate on HPLC.
7. Explain serum protein electrophoresis. Add a note on Paraproteinemia.
8. Write about the chemical, radiation and fire safety in a laboratory. Add a note on Disposal of Biohazardous waste.
9. Principle, working procedure and applications of flame emission spectrophotometry
10. Give a detailed account on standardized clinical laboratory set up.

Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 18-May-2023

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

MICROBIOLOGY – I
(RS-2)
Q.P. CODE: 9812

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. Laboratory diagnosis of Human immunodeficiency virus.
2. Life cycle of Plasmodium falciparum.
3. Antimicrobial susceptibility testing and its quality control.
4. Laboratory diagnosis of Cholera.
5. Clinical manifestations of Candidiasis.

Section B – Immunology and Molecular Biology [50 marks]

6. Define complement system. Give a detailed account on the activation of classical complement pathway.
7. Type I Hypersensitivity.
8. Structure and replication of DNA.
9. Structure and functions of MHC Class I and II molecules.
10. Differentiation of T and B Cells.

Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 20-May-2023

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

Haematology and Blood Transfusion – I (RS-2)

Q.P. CODE: 9813

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. Define and classify leukemias. Discuss acute leukemias.
2. Write in detail about hemolytic diseases of newborn.
3. Automation in hematology.
4. Discuss methods of collection, indications and contraindications for CSF analysis.
5. Discuss collection of sputum with physical and microscopic examination of sputum.

Section B – Immunopathology and Medical Genetics [50 marks]

6. Pre-transfusion requisites and testing of blood.
7. HLA typing principle, procedure and clinical significance.
8. Autoimmune hemolytic anemia – types and diagnosis.
9. What is Barr body? How is buccal smear taken for detection of Barr study?
10. Discuss systemic lupus erythematosus. Etiopathogenesis and lab diagnosis.

Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 05-Jul-2022

[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. Describe the structural organization of proteins. Add a note on protein folding.
2. Explain different methods of blood collection. Discuss the collection of blood specimens by venepuncture. Comment on the use of various blood collection tubes and order of blood draw.
3. What are the indications for ordering oral glucose tolerance test (OGTT) and oral glucose challenge test (OGCT)? Discuss the patient instructions, specimen collection, measurement of analytes, procedure and interpretation of results.
4. Discuss the structure, composition, functions, synthesis and degradation of chylomicrons.
5. Differentiate between stable isotopes and radioactive isotopes. Discuss the units of radioactivity and the analytical applications of radioactive isotopes

Section B – Laboratory Principles and Techniques [50 marks]

6. What is the principle of osmometry? Discuss the instrumentation and working of osmometer. Add a note on the calculated serum osmolality.
7. Discuss different types of internal quality control (IQC) materials. Explain the stepwise procedure of analysis of IQC and preparation of Levey-Jenning's control chart.
8. What is meant by cell fractionation? Describe the process of separation and biochemical activities of fractions. Add a note on the marker enzymes.
9. Classify fire. Discuss the causes of fire hazards, fire extinguishers and fire management in a clinical laboratory.
10. Differentiate between flame emission spectrophotometry and atomic absorption spectrophotometry. Discuss the instrumentation and applications of both techniques.

Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 07-Jul-2022

[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. Discuss the etiopathogenesis and laboratory diagnosis of disseminated intravascular coagulation.
2. Discuss erythropoiesis with labelled diagrams.
3. Discuss routine urine examination and add a note on casts and crystal noted.
4. Discuss auto immune hemolytic anemia and add a note on its laboratory diagnosis.
5. Classify methods of hemoglobin estimation and discuss any one method in detail.

Section B – Immunopathology and Medical Genetics [50 marks]

6. Describe the etiopathogenesis of autoimmune diseases. Write the classification of autoimmune diseases.
7. Describe the pathogenesis of AIDS with a note on diagnosis and monitoring of HIV infection.
8. Discuss type 4 hypersensitivity in detail.
9. Karyotyping.
10. Mention the abnormalities of sex chromosomes. Write a note on Turner's syndrome.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 11-Jul-2022

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. Explain the pathogenesis and laboratory diagnosis of pulmonary tuberculosis. Add a note on RNTCP
2. Write in detail about biomedical waste management
3. Briefly describe the morphology, pathogenesis and lab diagnosis of HIV
4. Briefly describe the quality control in microbiology lab
5. Write in detail about morphology, life cycle, pathogenesis and lab diagnosis of P. falciparum

Section B – Immunology and Molecular Biology [50 marks]

6. Describe in detail about alternate pathway of complement system. Enumerate the effects produced due to deficiency of complement components
7. Define and classify immunity. Write in detail about acquired immunity
8. Explain in detail about cell-mediated immune response
9. Define and classify antigen antibody reactions. Write in detail about precipitation reactions
10. Describe the organisation of prokaryotic and eukaryotic genome. Discuss the process of meiosis

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Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 05-Jul-2022

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

BIOCHEMISTRY – I
(RS-2)
Q.P. CODE: 9811

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. Write about the nutritional importance of Protein. Add a note on treatment of protein-energy malnutrition.

2. Describe the functions of lipoproteins. Explain the catabolism of VLDL. Add a note on the uptake of LDL by tissues.

3. What are the indications for conducting oral glucose tolerance test (OGTT)? Discuss the patient instructions, sample collection, analysis and interpretation of the results of modern OGTT.

4. Define creatinine clearance test. Give an overview of the patient instructions, timed collection of specimens and creatinine estimation by chemical and enzymatic methods.

5. Discuss the blood PH regulation mechanism. Add a note on abnormal haemoglobins.

Section B – Laboratory Principles & Techniques [50 marks]

6. Describe the principle and applications of paper chromatography. Explain the procedure of separation of amino acids using this technique. Add a note on the advantages and disadvantages.

7. Describe the principle behind centrifugation techniques. Give the applications of preparative and analytical centrifugation and discuss the procedure in detail.

8. Give an overview of the stepwise approach of transition from manual to fully automated systems in a clinical laboratory. Comment on the pneumatic tube systems for the transport of blood specimen, its advantages and the disadvantages.

9. Describe the responsibilities of employer and employee towards the laboratory safety. Discuss the biologic safety norms and the safety equipment required in a laboratory.

10. Write the principle of potentiometry. Explain in detail about reference and indicator electrode with suitable example.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 07-Jul-2022

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

MICROBIOLOGY – I

(RS-2)

Q.P. CODE: 9812

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. Enteric fever – List the etiological agents and describe its laboratory diagnosis.
2. Describe laboratory diagnosis of fungal infections.
3. Define sterilization and disinfection. Describe Hot air oven as a method of sterilization.
4. Describe pathogenesis, laboratory diagnosis and prophylaxis of rabies.
5. Malaria – Enumerate the agents, life cycle and laboratory diagnosis of P.vivax.

Section B – Immunology and Molecular Biology [50 marks]

6. Define and classify hypersensitivity reactions. Describe Type three reaction.
7. Compare and contract VDRL and RPR.
8. ELISA – Principle, types, applications.
9. Discuss National Immunization Schedule.
10. Discuss tumour immunology.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 11-Jul-2022

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

Haematology and Blood Transfusion – I (RS-2)
Q.P. CODE: 9813

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. Classify Myeloproliferative disorders. Discuss the lab diagnosis of CML.
2. Sickle cell anemia and lab diagnosis.
3. Reticulocyte count and its clinical significance.
4. Iron deficiency anemia – Bone marrow picture and laboratory diagnosis
5. Define. Classification and laboratory diagnosis of Hemolytic Anemia.

Section B – Immunopathology and Medical Genetics [50 marks]

6. Discuss pathogenesis of autoimmune disorders. Discuss diagnosis of Systemic Lupus Erythematosus (SLE).
7. Discuss Karyotyping in detail.
8. Give examples and clinical significance of tumour markers.
9. Opportunistic infection in AIDS.
10. Type I Hypersensitivity reactions.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 22-Nov-2023

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. Write briefly on lipoproteins and it's association with coronary artery diseases. Add a note on lipid profile tests
2. Give an account on CSF analysis for the treatment of meningitis
3. Write in detail about glucose tolerance test
4. **Classify Major & Minor Plasma Proteins based on electrophoretic mobility. Write the functions and clinical significance of any 2 plasma proteins.**
5. Briefly discuss about the clinical utility of Radioactive isotopes

Section B – Laboratory Principles and Techniques [50 marks]

6. Give an account on laboratory safety and regulations
7. Explain in detail about Total Quality Management
8. Write about the principle, components, working and applications of Thin layer chromatography
9. Write preparative and analytical centrifugation in clinical and research laboratory
10. Write in detail about automation in clinical laboratory

Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 24-Nov-2023

[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. Define anemia. Write the morphological classification of Anemia and give example. Add a note on Red cell indices.
2. What is principle, procedure and interpretation of a) Sickling test b) Direct Coombs test.
3. Explain in detail the steps of semen analysis.
4. Write in detail the causes, lab diagnosis and confirmatory tests for Iron deficiency anemia.
5. What is Quality control and its importance? Discuss the Quality control procedure followed for Automated hematology analysers.

Section B – Immunopathology and Medical Genetics [50 marks]

6. Enumerate the cells of immune system, their roles and functions.
7. Discuss the type IV hypersensitivity and pathogenesis of granuloma.
8. Discuss types of grafts used and transplant rejection in detail.
9. Explain in detail technique of peripheral Lymphocyte culture. Add a note on Karyotype found in Turner's syndrome and Klinefelter's syndrome.
10. Draw the representative diagram of the HIV virus. Write in detail the pathogenesis and lab diagnosis of AIDS.

Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 27-Nov-2023

[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. Cholera – describe pathogenesis and its laboratory diagnosis.
2. Candidiasis – list six common pathogenic species, their clinical manifestations and laboratory diagnosis.
3. Define sterilization and disinfection. Name the chemical agents with examples and describe high level gaseous agents.
4. Describe the morphology, pathogenesis laboratory diagnosis of Rabies. Add note on immunoprophylaxis of Rabies.
5. Amoebiasis – describe the morphology, life cycle, laboratory diagnosis.

Section B – Immunology and Molecular Biology [50 marks]

6. Define and classify hypersensitivity reactions. Describe Type four reaction.
7. Fish Principle & Application.
8. ELISA – principle, types and its applications.
9. IgM antibody – structure, properties and functions.
10. Immunofluorescence – principle, types and applications.

Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 12-Dec-2022

[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. Describe the role of kidneys in the regulation of blood pH. Discuss the renal compensation to acidosis and alkalosis.

2. Discuss the clinical importance of amylase. Explain the sample collection, transport and laboratory evaluation of this enzyme.

3. Nutritional importance of carbohydrates and fats.

4. Enumerate the functions of lipoproteins. Explain the synthesis, tissue uptake and clinical significance of LDL.

5. Define Paraproteinemia. List the major disorders associated with Paraproteinemia and explain the serum electrophoretic technique used in the diagnosis.

Section B – Laboratory Principles and Techniques [50 marks]

6. Describe the responsibilities of employer and employee towards the laboratory safety. Discuss the biologic safety norms and the safety equipment required in a laboratory.

7. Classify SI units with suitable examples. Discuss the advantages and disadvantages of conventional and SI units. Comment on the Non-SI units.

8. ISO guidelines and laboratory accreditation.

9. Explain the principle, uses, care and maintenance of pH meter and centrifuges.

10. Define external quality assessment (EQA). Discuss the objectives and typical events of an EQA scheme. Comment on the interpretation of EQA results.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 14-Dec-2022

[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. What are Red cell indices? Explain the role of red cell indices in the differential diagnosis of anemias.

2. Discuss the clinical presentation and Lab diagnosis of Hemophilia.

3. What are the indications of Stool Examination? Explain collection, preservation and examination of a stool sample. Add a note on the microscopic findings reported.

4. Describe in detail pathogenesis and lab findings in Chronic Myeloid leukemia. Add a note on the detection of Philadelphia chromosome.

5. Write in detail the pathogenesis and lab diagnosis of Sickle Cell Anemia.

Section B – Immunopathology and Medical Genetics [50 marks]

6. Explain clinical features, pathogenesis and lab diagnosis of Hashimoto Thyroiditis.

7. Explain type III hypersensitivity with examples.

8. Discuss the etiopathogenesis and lab diagnosis of AIDS.

9. Classify Genetic disorders and give examples. Add a note on Mendel's laws of inheritance.

10. What is Major Histocompatibility complex? Explain the clinical importance of MHC.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 16-Dec-2022

[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. **Describe the Pathogenesis and the laboratory diagnosis of Enteric fever**
2. Define and name the dimorphic fungi. Describe laboratory diagnosis of Histoplamosis.
3. Define sterilization and disinfection. Describe method of sterilization by autoclave.
4. **Describe the morphology of HIV. Explain the pathogenesis & laboratory diagnosis of AIDS.**
5. Amoebiasis – Describe the agent, life cycle, laboratory diagnosis.

Section B – Immunology and Molecular Biology [50 marks]

6. Define complements. Discuss various complement pathways.
7. VDRL – Principle and its application. Compare and contrast VDRL with RPR.
8. FISH – Principle and applications.
9. Classify immuno deficiency disorders with examples. Add a note on laboratory diagnosis.
10. Describe MHC/HLA. Discuss the uses of HLA typing. Add a note on MHC restriction.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 12-Dec-2022

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

BIOCHEMISTRY – I
(RS-2)
Q.P. CODE: 9811

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 the physical, optical and amphoteric properties of amino acids. Describe the classification of amino acids based on polarity.

2. Explain the principle and procedure for the estimation of serum glucose by Folin–Wu method and glucose oxidase method. Comment on the biological reference intervals of serum glucose by both methods.

3. Discuss the causes of coronary artery disease. Add a note on lipid profile.

4. What is ACTH stimulation test? Explain the biochemical basis, sample collection, measurement of analyte and the results of this test.

5. Comment on the electrolyte concentration of body fluids. Discuss the regulation of sodium and water balance. Add a note on the clinical features of hypernatremia and its laboratory evaluation.

Section B – Laboratory Principles & 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 an overview of a standardized clinical laboratory set up. Describe various factors to consider for fire safety, ventilation and plumbing while designing a laboratory. Comment on the factors affecting the productivity of a laboratory.

8. Explain in detail the role of automated system in work simplification process in clinical laboratory.

9. Write in detail about the use of Internal Quality control material. Add a note on In-house sera preparation.

10. What is meant by cell fractionation? Describe the process of separation and biochemical activities of fractions. Add a note on the marker enzymes.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 14-Dec-2022

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

MICROBIOLOGY – I
(RS-2)
Q.P. CODE: 9812

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. Describe the immunoprophylaxis of Rabies virus.
2. Biomedical waste management.
3. Laboratory diagnosis of Cholera.
4. Laboratory diagnosis of pulmonary tuberculosis.
5. Life cycle and pathogenesis of Ascaris lumbricoides.

Section B – Immunology and Molecular Biology [50 marks]

6. Describe the principles and applications of ELISA.
7. Active immunity.
8. Mechanism of autoimmunity.
9. Structure and function of MHC.
10. Structure, functions and properties of IgG.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 16-Dec-2022

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

Haematology and Blood Transfusion – I (RS-2)
Q.P. CODE: 9813

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. Define anemia. Classify anemia. Discuss etiopathogenesis and laboratory investigations of iron deficiency anemia.
2. Discuss biomedical waste management.
3. Write in detail about collection, transportation and preservation of stool specimen.
4. What is hemoglobin electrophoresis. Discuss principle and chemical applications.
5. Discuss Philadelphia chromosome and chronic myeloid leukemia.

Section B – Immunopathology and Medical Genetics [50 marks]

6. Etiopathogenesis of AIDS infection.
7. Describe anaphylaxis. Explain bronchial asthma.
8. Classify genetic diseases. Write about Downs syndrome.
9. Define granuloma. Discuss in detail about leprosy.
10. Write a short note on tumor markers.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 03-Jan-2022

[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. Diagnostic criteria for diabetes mellitus. Add a note on determination of blood glucose by enzymatic method.

2. Classify Lipoproteins. Write their functions. Add a note on LDL metabolism.

3. Explain a) Xylose Absorption Test b) ACTH stimulation test.

4. Acquisition of arterial blood gas samples in the laboratory and reference intervals arterial blood gasses. Add a note on criteria for rejection of blood samples.

5. Write the chemical composition and biochemical analysis Cerebrospinal Fluid (CSF).

Section B – Laboratory Principles and Techniques [50 marks]

6. Define chromatography. Mention the types of chromatography. Briefly explain ion exchange chromatography. Mention their applications.

7. L.J charts and Westgard rule.

8. What is Osmometry? Name the different types of osmometers. Explain the principle, instrumentation and application of freezing point osmometer.

9. Describe cell fractionation in detail.

10. Documentation in the laboratory.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 05-Jan-2022

[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. Draw a neat labelled diagram showing the stages of Erythropoiesis and Myelopoiesis.
2. Define a macrocyte. Write in detail causes and lab findings in Megaloblastic anemia.
3. Describe in detail pathogenesis and lab findings in Chronic Myeloid leukemia. Add a note on the detection of Philadelphia chromosome.
4. What is Hemolysis? Write the types of Hemolysis with examples. Discuss in detail various laboratory evidences of Hemolysis.
5. Write in detail the principles of Automation in hematology. Add a note on the advantages and disadvantages.

Section B – Immunopathology and Medical Genetics [50 marks]

6. Describe in detail the types, clinical features and lab diagnosis of Immune Thrombocytopenia (ITP).
7. Write the principle, procedure and interpretation of Benzidine test for a urine sample. List the causes of a positive Benzidine test.
8. Discuss type IV hypersensitivity reactions and explain the pathogenesis with examples.
9. Explain the methods of identification of Barr body. Add a note on the clinical significance of Barr body.
10. Explain in detail technique of peripheral lymphocyte culture. Add a note on Karyotype found in Down's syndrome and Turner's syndrome.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 07-Jan-2022

[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. Pulmonary tuberculosis – Describe its laboratory diagnosis and add a note on the national program for its diagnosis and treatment.
2. Define Dimorphic fungi, list them and describe laboratory diagnosis Rose Gardener's Disease.
3. Identification of bacterial pathogens – describe the morphological and biochemical tests used for their identification.
4. Describe the lab diagnosis and preventive strategies for Polio
5. Hydatid disease – Name the agent, describe the life cycle, pathogenesis and its laboratory diagnosis.

Section B – Immunology and Molecular Biology [50 marks]

6. Immunity – Definition types and describe acquired immunity.
7. Mechanisms of bacterial drug resistance.
8. DNA finger printing technology – principle, applications.
9. What are immunoglobulins? Describe their structure and functions based on the type.
10. Define agglutination and precipitation reactions. Describe application of agglutination reactions in diagnostic laboratory.

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First Year M.Sc. (MLT) Degree Examination - 07-Jan-2022

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

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

Corrections

Replace Question Nos. 4 & 6 as follows :

4. Describe the lab diagnosis and preventive strategies for Polio
6. Immunity – Definition types and describe acquired immunity.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 03-Jan-2022

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

BIOCHEMISTRY – I
(RS-2)
Q.P. CODE: 9811

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. Describe the structural organization of protein. Explain the determination of primary structure.
2. What are the indications for conducting oral glucose challenge test (OGCT)? Discuss the patient instructions, sample collection, analysis and interpretation of the results of this test.
3. Discuss in detail about the properties of Aminoacids. Add a note on classification of aminoacids based on polarity.
4. Describe the sample collection, transport, and analysis of arterial blood gases. Add a note on the biological reference intervals and preanalytical variables.
5. What are the indications for biochemical analysis of Cerebrospinal fluid (CSF)? Explain the sample collection, principle and procedure for the measurement of biochemical analytes in CSF.

Section B – Laboratory Principles & Techniques [50 marks]

6. Discuss the specifications for radiation safety in clinical laboratory. Describe the disposal of radioactive and hazardous waste.
7. Describe the responsibilities of employer and employee towards the laboratory safety. Discuss the biologic safety norms and the safety equipment required in a laboratory.
8. Explain the principle, uses, care and maintenance of weighing balance, pH meter and centrifuges.
9. Write in detail about quality control in clinical laboratory. Add a note on errors caused during analysis.
10. Describe the principle and applications of Potentiometry. Give the schematic diagram of ion-selective membrane electrode based potential cell and discuss the care and maintenance.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 05-Jan-2022

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

MICROBIOLOGY – I
(RS-2)
Q.P. CODE: 9812

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. Lab diagnosis of Dermatophytosis.
2. Bacteriological examination of water.
3. Pathogenicity and clinical manifestation of Enteric fever.
4. Laboratory diagnosis of Candidiasis.
5. Herpes Simplex Viruses – pathogenicity, clinical manifestation and lab diagnosis.

Section B – Immunology and Molecular Biology [50 marks]

6. Write in detail the mechanism and different types of cells involved in CMI.
7. Classical and alternate complement cascade pathway.
8. Difference between primary and secondary immune response.
9. Type IV hypersensitivity.
10. Mechanism and functions of flow cytometry, FISH and CGH.

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Rajiv Gandhi University of Health Sciences, Karnataka

First Year M.Sc. (MLT) Degree Examination - 07-Jan-2022

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

Haematology and Blood Transfusion – I (RS-2)
Q.P. CODE: 9813

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. List the Hemoparasites. Write in detail the lab diagnosis of malaria.
2. Discuss the causes and lab diagnosis of Megaloblastic anemia.
3. Draw the stages of erythropoiesis. Write a note on significance of Reticulocyte count and its estimation.
4. List the morphological differences between Myeloblast and Lymphoblast. Add a note on cytochemistry used to differentiate them.
5. Explain the steps for examination of CSF. Discuss the differences in lab findings of CSF in Bacterial and Viral meningitis.

Section B – Immunopathology and Medical Genetics [50 marks]

6. Discuss hypersensitivity reactions with examples.
7. Describe the clinical presentation, pathogenesis and lab diagnosis of SLE.
8. What are the various types of adverse transfusion reactions? Describe the transfusion reaction workup done in these cases.
9. What are the types, clinical presentation of immune thrombocytopenia. Add a note on the lab diagnosis of ITP.
10. What is autosomal recessive inheritance? Explain with examples.

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