Rajiv Gandhi University of Health Sciences

First Year M.Sc. (MLT) Degree Examination - APRIL/MAY 2015

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

BIOCHEMISTRY - I

Q.P. CODE : 9671

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]

LONG ESSAY **1 X 20 = 20 Marks**

1. What are enzymes? Classify them. Explain the various factors affecting enzyme activity.

SHORT ESSAY **5 X 6 = 30 Marks**

2. What are Heteropolysaccharides? Give examples. Write their functions.
3. Write the biological importance of nucleotides.
4. Write the composition of CSF. What are the biochemical findings seen in bacterial and viral infections?
5. Write the normal levels of:
   a) Fasting blood glucose
   b) Serum sodium
   c) Serum creatinine
   d) Serum potassium
   e) Serum calcium
   f) Serum bicarbonate
6. Write the causes and clinical manifestations of:
   a) Hyperkalemia
   b) Hypernatremia

Section B - Biomedical Techniques & Lab. Management [50 marks]

LONG ESSAY **1 X 20 = 20 Marks**

7. Explain the principle, procedure and uses of ion exchange chromatography.

SHORT ESSAY **5 X 6 = 30 Marks**

8. Write the components of ETC. Give examples for uncouples.
9. Principle and uses of ultra centrifugation
10. Quality control in laboratory
11. Discuss the preliminary fractionation methods used for protein purification.
12. Write about the laboratory safety measures.

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Rajiv Gandhi University of Health Sciences

First Year M.Sc. (MLT) Degree Examination - MAY 2015

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

MICROBIOLOGY - I

Q.P. CODE : 9672

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]

LONG ESSAY **1 X 20 = 20 Marks**

1. Classify sterilization. Describe chemical methods in detail.

SHORT ESSAY **5 X 6 = 30 Marks**

2. Specimen collection and laboratory diagnosis of tuberculosis
3. Laboratory diagnosis of malaria
4. Arboviruses in India
5. Pneumocystis carinii pneumonia
6. Describe the bacterial analysis of water.

Section B – Immunology and Molecular Biology [50 marks]

LONG ESSAY **1 X 20 = 20 Marks**

7. What are T cells? Describe the development of T cells in the thymus. Add a note on classification of T cells.

SHORT ESSAY **5 X 6 = 30 Marks**

8. Describe the classical pathway of complement and differentiate it from alternate pathway.
9. Flow cytometry
10. Describe the methods of chromosome analysis.
11. Describe the functional properties of immunoglobulins classes.
12. Explain the Lac operon.

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Rajiv Gandhi University of Health Sciences

First Year M.Sc. (MLT) Degree Examination – MAY 2015

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

HAEMATOLOGY AND BLOOD TRANSFUSTION - I

Q.P. CODE : 9673

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]

LONG ESSAY **1 X 20 = 20 Marks**

1. Name the various anticoagulants used in hematology laboratory and blood bank. Discuss the mechanisms of action, advantages and disadvantages of each anticoagulant.

SHORT ESSAY **5 X 6 = 30 Marks**

2. Sickling test
3. Microcytic anemias
4. Automation in hematology
5. Semen analysis
6. Laboratory diagnosis of Acute Myeloblastic Leukemia

Section B - Immunology and Medical Genetics [50 Marks]

LONG ESSAY **1 X 20 = 20 Marks**

7. Discuss the methods of chromosomal analysis and discuss in detail on chromosomal abnormalities.

SHORT ESSAY **5 X 6 = 30 Marks**

8. HLA and disease association
9. Granulomatous reaction
10. Gaucher disease
11. L E cell preparation
12. Discuss X linked disorders with an example.

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Rajiv Gandhi University of Health Sciences

First Year M.Sc. (MLT) Degree Examination - APRIL/MAY 2015

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

BIOCHEMISTRY – I

(Revised Scheme – 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]

LONG ESSAY **2 X 10 = 20 Marks**

1. Describe the structural organization of protein with relevant examples.
2. Describe Urea cycle and write its significance. Add a note on Gout.

SHORT ESSAY **5 X 6 = 30 Marks**

3. Mention the normal and abnormal constituents of urine. Write in detail about examination of abnormal constituents of urine.
4. Nutritional classification of Amino acids
5. Define clearance test. Write creatinine clearance in detail.
6. Explain the respiratory regulation of acid base balance. Add a note on metabolic acidosis.
7. Define radioactivity. Explain in detail the different applications of radioisotopes.

Section B – Laboratory Principles & Techniques [50 marks]

LONG ESSAY **2 X 10 = 20 Marks**

8. Explain affinity chromatography. Give their applications.
9. Laboratory safety and regulations

SHORT ESSAY **5 X 6 = 30 Marks**

10. Write a short note on Quality Control (QC).
11. Conventional and SI units
12. Basic principles of sedimentation, Note on centrifugation in biological research
13. Principle, instrumentation and applications of Flame emission spectrophotometer
14. Role of lab supervisors in training

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Rajiv Gandhi University of Health Sciences

First Year M.Sc. (MLT) Degree Examination - MAY 2015

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

MICROBIOLOGY – I

(Revised Scheme – 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]

LONG ESSAY **1 X 20 = 20 Marks**

1. Describe the etiology, pathogenesis and laboratory diagnosis of Bacillary dysentery.

SHORT ESSAY (Attempt any six) **6 X 5 = 30 Marks**

2. Universal precautions in laboratory
3. Different disinfectants used in hospitals and its uses
4. Laboratory diagnosis of Amoebiasis
5. Laboratory diagnosis of HIV
6. Cryptococcosis
7. Laboratory diagnosis of Extrapulmonary Tuberculosis
8. Bacterial drug resistance
9. Standard tests for Syphilis

Section B – Immunology and Molecular Biology [50 marks]

LONG ESSAY **1 X 20 = 20 Marks**

10. Enumerate Antigen-Antibody reactions. Explain agglutination reaction in detail with uses.

SHORT ESSAY (Attempt any six) **6 X 5 = 30 Marks**

11. Mutations in Bacteria
12. Anaphylaxis
13. Mechanism of innate immunity
14. Peripheral lymphoid organs
15. Mechanism of autoimmune disorders
16. Lac operon
17. RFLP technique
18. Gene therapy

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Rajiv Gandhi University of Health Sciences

First Year M.Sc. (MLT) Degree Examination - MAY 2015

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

HAEMATOLOGY AND BLOOD TRANSFUSION – I

(Revised Scheme – 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]

LONG ESSAY **2 X 10 = 20 Marks**

1. Describe origin, development, steps of Erythropoiesis including morphology of all precursor cells. Add a note on regulation.
2. Define and classify acute leukemias. Write in detail about clinical features, morphology and lab diagnosis of AML.

SHORT ESSAY **5 X 6 = 30 Marks**

3. Describe different types of microcytic, hypo chromic anaemias and lab investigations for diagnosis of iron deficiency anaemia and write causes of IDA.
4. Osmotic fragility
5. Alkali denaturation test
6. Describe indications, sites and techniques of bone marrow aspiration and biopsy and different staining techniques.
7. Describe Haemoparasites.

Section B – Immunopathology and Medical Genetics [50 marks]

LONG ESSAY **2 X 10 = 20 Marks**

8. Describe two connective tissue diseases – SLE and RH.FEVER.
9. Describe mechanism of anaphylaxis.

SHORT ESSAY **5 X 6 = 30 Marks**

10. Atopy
11. Sjogren's syndrome
12. Immunomodulators
13. Chromosomal abnormalities
14. Autosomal dominant and recessive inheritance

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Rajiv Gandhi University of Health Sciences

First Year M.Sc. (MLT) Degree Examination - OCTOBER 2015

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

BIOCHEMISTRY - I

Q.P. CODE : 9671

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]

LONG ESSAY **1 X 20 = 20 Marks**

1. Classify liver function test. Explain the importance of different test.

SHORT ESSAY **5 X 6 = 30 Marks**

2. Classify lipoproteins. Write their functions.
3. Define denaturation. Name the factors, which cause denaturation. What are the properties altered during denaturation?
4. Define clearance test. Explain creatinine clearance test.
5. What is competitive inhibition? Mention its clinical significance with examples.
6. Name the blood gases and mention their importance.

Section B - Biomedical Techniques & Lab. Management [50 marks]

LONG ESSAY **1 X 20 = 20 Marks**

7. What are radioisotopes? Give suitable examples. Describe briefly the methods used for measurement of radioactive isotopes. Explain the use or applications of radioisotopes.

SHORT ESSAY **5 X 6 = 30 Marks**

8. Principle and applications of isoelectric focusing
9. Discuss different types of biomedical waste, potential risks and their safe management.
10. Discuss the principle and technique of Spectrophotometry.
11. Explain the mechanism of oxidative phosphorylation. Name the uncouplers.
12. Describe the subcellular fractionation using differential centrifugation. Indicate the different subcellular fractions obtained and the characteristic marker for each fraction.

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Rajiv Gandhi University of Health Sciences

First Year M.Sc. (MLT) Degree Examination - OCTOBER 2015

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

BIOCHEMISTRY – I

(Revised Scheme – 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]

LONG ESSAY **2 X 10 = 20 Marks**

1. Give an account of the nutritional importance of carbohydrates, lipids and proteins.
2. Write a note on diagnostically important enzymes.

SHORT ESSAY **5 X 6 = 30 Marks**

3. Atherosclerosis
4. Xylose absorption test
5. Secondary structure of proteins
6. Cerebrospinal fluid and its clinical significance
7. Estimation of blood glucose by enzymatic method

Section B – Laboratory Principles & Techniques [50 marks]

LONG ESSAY **2 X 10 = 20 Marks**

8. Define chromatography. Explain the principle, procedure and applications of Gas-Liquid Chromatography.
9. Discuss the various aspects of laboratory designing in detail.

SHORT ESSAY **5 X 6 = 30 Marks**

10. Uses, care and maintenance of pH meter
11. What are the different aspects involved in the training of laboratory technical staff?
12. Principle and applications of Osmometry
13. Uses, care and maintenance of Analytical weighing balance
14. Documentation in a clinical laboratory

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Rajiv Gandhi University of Health Sciences

First Year M.Sc. (MLT) Degree Examination - OCTOBER 2015

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

HAEMATOLOGY AND BLOOD TRANSFUSION – I

(Revised Scheme – 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]

LONG ESSAY **2 X 10 = 20 Marks**

1. Define Myelodysplastic syndrome. Discuss pathophysiology and write about peripheral smear and bone marrow findings.
2. Describe in detail disseminated intravascular coagulation. Discuss the clinical features and its investigation.

SHORT ESSAY **5 X 6 = 30 Marks**

3. Explain the principle, procedure and significance of the Osmotic Fragility Test (OFT).
4. Bone marrow biopsy
5. Causes of iron deficiency anemia
6. Semen analysis
7. Describe structure of Haemoglobin. Discuss one Abnormal Haemoglobin.

Section B – Immunopathology and Medical Genetics [50 marks]

LONG ESSAY **2 X 10 = 20 Marks**

8. Classify autoimmune disease and discuss about Systemic Lupus Erythematosis (SLE).
9. Give an overview of sex determination. Discuss the methods of chromosomal analysis.

SHORT ESSAY **5 X 6 = 30 Marks**

10. Describe in detail about autosomal recessive inheritance and give an example.
11. Erythroblastosis Fetalis
12. Histocompatibility testing
13. Discuss techniques of detection of Barr body.
14. What is Agranulocytosis? List the causes of Agranulocytosis.

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Rajiv Gandhi University of Health Sciences

First Year M.Sc. (MLT) Degree Examination – OCTOBER 2015

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

HAEMATOLOGY AND BLOOD TRANSFUSTION - I

Q.P. CODE : 9673

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]

LONG ESSAY **1 X 20 = 20 Marks**

1. Classify acute myeloblastic leukemias (FAB). Discuss the differences between Myeloblasts and Lymphoblasts with a note on cytochemistry.

SHORT ESSAY **5 X 6 = 30 Marks**

2. Differential diagnosis of microcytic anemias
3. Philadelphia chromosome
4. Erythrocyte indices
5. Sickling phenomenon
6. Test for haemosiderin pigment

Section B - Immunology and Medical Genetics [50 Marks]

LONG ESSAY **1 X 20 = 20 Marks**

7. Classify autoimmune diseases. Discuss the etiology and pathogenesis of systemic lupus Erythamatosis.

SHORT ESSAY **5 X 6 = 30 Marks**

8. Erythroblastosis Fetalis
9. Explain X linked inheritance. Give an example.
10. Granulomatous reaction
11. Structural abnormalities in chromosomes
12. T-lymphocytes

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