Rajiv Gandhi University of Health Sciences

First Year M.Sc. (MLT) Degree Examination - April/May 2016

[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. Discuss the types, metabolic alterations, clinical manifestations and management of Diabetes mellitus.
2. Discuss the structural organization of Proteins. Add a note on the bonds that stabilize the protein structure.

SHORT ESSAY 5 X 6 = 30 Marks

3. Diagnostically important enzymes
4. Cerebrospinal fluid and its clinical significance
5. Creatinine clearance
6. Classify plasma lipoproteins. Write a note on their transport and functions.
7. Arterial blood gas estimation and its clinical applications.

Section B – Laboratory Principles & Techniques [50 marks]

LONG ESSAY 2 X 10 = 20 Marks

8. Define electrophoresis. Explain the principle, procedure and application of Polyacrylamide gel electrophoresis.
9. Discuss the various aspects of laboratory designing in detail. Add a note on total quality management in a laboratory.

SHORT ESSAY 5 X 6 = 30 Marks

10. Explain the principles and applications of ultra-centrifugation.
11. Internal quality control
12. Write a note on disposal of chemical and biohazardous waste in a laboratory.
13. HPLC
14. Write a note on pH meter.

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Rajiv Gandhi University of Health Sciences

First Year M.Sc. (MLT) Degree Examination - April/May 2016

[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 morphology, cultural characteristics, pathogenicity, clinical manifestation and lab diagnosis of Streptococcus pyogenes

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

2. Contributions of Robert Koch
3. Modes of transmission of hospital acquired infections
4. Lab diagnosis of cholera
5. Specific tests for syphilis
6. Pathogenicity of human immunodeficiency virus
7. Pathogenicity and lab diagnosis of Herpes Zoster virus
8. Lab diagnosis of candidiasis
9. Clinical manifestations and lab diagnosis of Histoplasma capsulatum

Section B – Immunology and Molecular Biology [50 marks]

LONG ESSAY 1 X 20 = 20 Marks

10. Define complement system. Give a detailed account on the activation of classical complement pathway. Add a note on the biological significance of the complement system.

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

11. Anaphylaxis
12. Properties of an antigen
13. Development of T cell
14. Describe the structure and function of IgM.
15. Immunoelectrophoresis
16. Mechanism of auto immunity
17. Flow cytometry

18 Structure of DNA

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Rajiv Gandhi University of Health Sciences

First Year M.Sc. (MLT) Degree Examination - APRIL/MAY 2016

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

HAEMATOLOGYANDBLOODTRANSFUSION–I

(Revised Scheme – 2)

Q.P. CODE: 9813

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

Section A – Haematology and Clinical Pathology [50 marks]

LONG ESSAY 2 X 10 = 20 Marks

1. Classify myeloproliferative disorders. Describe the clinical features, peripheral smear and bone marrow findings in Chronic Myeloid Leukemia.
2. What are the indications for bone marrow aspiration biopsy? Describe the technique, transportation and smear preparation of bone marrow aspiration biopsy.

SHORT ESSAY 5 X 6 = 30 Marks

3. Write the principle, procedure and significance of indirect Coomb's test.
4. Peripheral blood smear in sickle cell anemia and tests done to diagnose.
5. Explain Leukemoid reaction.
6. What is Hemolytic disease of the new born? Mention investigations of a case of Hemolytic disease of new born.
7. Write the collection, transport and examination of Body fluids.

Section B – Immunopathology and Medical Genetics [50 marks]

LONG ESSAY 2 X 10 = 20 Marks

8. Describe the etiopathogenesis of autoimmune diseases. Write the classification of autoimmune diseases.
9. Give an overview of Mendel's law of inheritance and the chromosomal basis of inheritance.

SHORT ESSAY 5 X 6 = 30 Marks

10. Describe buccal smear study and staining methods for Barr body.
11. Delayed type hypersensitivity with examples.
12. Classify immunodeficiency diseases with a note on AIDS.
13. Mention the abnormalities of sex chromosomes. Write a note on Turner's syndrome.
14. Describe X-linked inheritance with one example.

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Rajiv Gandhi University of Health Sciences

First Year M.Sc. (MLT) Degree Examination - OCTOBER 2016

[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. Explain the role of bicarbonate and phosphate buffer systems in regulating the pH of body fluids. Describe the pre analytical variables involved in ABG analysis. Give an account on the potentiometric measurement of blood gases and the instrumentation and give the reference intervals for pH, pCO_2 and pO_2 in arterial blood.
2. Give the classification for lipoproteins based on ultracentrifugation and electrophoretic mobility. Add a note on the functions of lipoproteins. Discuss the metabolism of low-density lipoprotein. Give an account of the involvement of LDL cholesterol in atherosclerosis.

SHORT ESSAY 5 X 6 = 30 Marks

3. Explain the biochemical alternations in Protein Energy Malnutrition (PEM). Give the salient features of Kwashiorkar and Marasmus. Add a note on the treatment of PEM.
4. What are the indications for ammonium chloride acidification test? Explain the principle and procedure of the test. Discuss the measurement of pH by the lab and add a note on the interpretation of the test.
5. Structural organization of Proteins
6. Give the diagnostic criteria for Diabetes Mellitus (DM). Describe the role of glycated HbA1c in management of DM.
7. Clinical importance of uric acid, Qualitative and Quantitative method for estimation of uric acid

Section B – Laboratory Principles & Techniques [50 marks]

LONG ESSAY 2 X 10 = 20 Marks

8. Give the principle of Freezing point depression Osmometry. Explain the components of Osmometer with a suitable diagram. Discuss the applications. Add a note on the regular maintenance of the Osmometer.
9. Explain Ion Exchange Chromatography under the following headings (a) Principle (b) Ion exchange resins (c) Procedure for separation of amino acids (d) Factors affecting separation.

SHORT ESSAY 5 X 6 = 30 Marks

10. Describe the important attributes of a well-trained technologist. Discuss briefly the role of a technologist in training a junior staff.
11. Disposal of chemical, radioactive and bio-hazardous Waste
12. Discuss the importance of sample collection manual and safety manual at sample collection facility of the lab. Explain various methods of storage and protecting these records.
13. LJ charts and Westgard Rules
14. Potentiometry

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First Year M.Sc. (MLT) Degree Examination - OCTOBER 2016

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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. Define sterilization and disinfection. Classify the sterilizing agents. Describe in detail the principle and working of the autoclave. What are the sterilization controls used in the autoclave?

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

2. List the dermatophytes. Describe briefly lab diagnosis of dermatophytosis.
3. VDRL test
4. Life cycle of Entamoeba histolytica
5. Prophylaxis of rabies
6. Laboratory diagnosis of cholera
7. Universal precautions
8. Virulence mechanisms of bacteria
9. Coagulase test

Section B – Immunology and Molecular Biology [50 marks]

LONG ESSAY 1 X 20 = 20 Marks

10. Enumerate antigen antibody reactions and write in detail about principle, types and applications of ELISA test.

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

11. Describe the various determinants of antigenicity.
12. Structure of MHC Class I and Class II molecules
13. Differences between T cells and B cells
14. Enumerate types of PCR and its uses.
15. Classical complement pathway
16. Immunological tolerance
17. Lac operon

18 IgM antibody – structure and function

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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. Write the etiology, clinical features and classification of acute myeloid leukemias. Describe the peripheral smear and bone marrow findings of Acute myeloid leukemia.
2. Define and classify hemolytic anemia. Describe the peripheral smear and bone marrow findings in Thalassemia.

SHORT ESSAY 5 X 6 = 30 Marks

3. Peripheral smear and bone marrow findings in Chronic myeloid leukemia
4. Describe normal myelopoiesis in the bone marrow.
5. Mention special stain used for study of iron in bone marrow aspiration smears and its interpretation.
6. List abnormal hemoglobins. Describe the procedure of Sickling test.
7. Describe indications and contraindications of lumbar puncture for CSF analysis.

Section B – Immunopathology and Medical Genetics [50 marks]

LONG ESSAY 2 X 10 = 20 Marks

8. Describe methods of Chromosomal analysis. What is the Karyotype of Down's syndrome?
9. Describe the pathogenesis of AIDS with a note on diagnosis and monitoring of HIV infection.

SHORT ESSAY 5 X 6 = 30 Marks

10. Describe genetic disorders with classical Mendlian inheritance.
11. Hemolytic disease of the new born
12. Write about the pathogenesis of autoimmune diseases.
13. Compatibility testing in the blood bank
14. Describe buccal smear study and staining methods for Barr body.

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