Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. (MLT) Degree Examination - 17-May-2023

Time: Three Hours | Max. Marks: 80

BIOCHEMISTRY – PAPER II (RS3)

Q.P. CODE: 3156

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

LONG ESSAY (Any Two) — 2 x 10 = 20 Marks

1. Explain the biochemical reactions of the Tricarboxylic Acid (TCA) cycle. Add a note on energetics of Tricarboxylic acid cycle
2. Explain catabolism of branched chain amino acids
3. Explain principle and instrumentation of paper chromatography. Add a note on applications of paper chromatography

SHORT ESSAY (Any Six) — 6 x 5 = 30 Marks

4. Explain diagnosis and management of diabetes mellitus
5. Beri-beri
6. Explain the structure of tRNA
7. Classify proteins based on their function
8. Transamination
9. Explain urinary acidification test
10. Explain biosynthesis of creatine
11. Explain mechanism of enzyme action

SHORT ANWERS (Any Ten) — 10 x 3 = 30 Marks

12. Isoelectric pH of amino acids
13. Describe the regulation of glycolysis
14. Describe determination of specific gravity of urine sample
15. Describe biochemical functions of vitamin B12
16. List the applications of nephelometry
17. Describe three types of RNA
18. Mutarotation
19. Describe biochemical functions of niacin
20. Describe clinical importance of uric acid
21. Molar solutions
22. Glycated hemoglobin
23. Von Gierke's disease

Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. (MLT) Degree Examination - 19-May-2023

Time: Three Hours | Max. Marks: 80 Marks

Microbiology – II (RS3)

Q.P. CODE: 3157

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

LONG ESSAY (Any Two) 2 x 10 = 20 Marks

1. Classify Mycobacteria. Explain in detail pathogenicity and laboratory diagnosis of tuberculosis. Add a note on RNTCP.
2. Explain the morphology, life cycle, pathogenicity and laboratory diagnosis of Entamoeba histolytica.
3. Enumerate the species of Clostridium. Explain the etiological agent, pathogenicity, laboratory diagnosis and prophylaxis of tetanus,

SHORT ESSAY (Any Six) 6 x 5 = 30 Marks

4. Lesions caused by Staphylococcus aureus
5. Leptospirosis
6. Laboratory diagnosis of Brucellosis
7. Hydatid cyst
8. Laboratory diagnosis of Malaria
9. Laboratory diagnosis of Kala-Azar
10. Stool examination for parasitic infection
11. Kirby-Bauer disc diffusion test

SHORT ANWERS (Any Ten) 10 x 3 = 30 Marks

12. IMViC test
13. Albert's stain
14. Name three important predisposing factors for nosocomial infections.
15. Name six serological tests done for the diagnosis of syphilis.
16. Halophilic Vibrios
17. What is significant bacteriuria? Name six bacteria causing UTI.
18. Complications of Falciparum malaria
19. Name the species of Schistosoma. Give three important differences of these species.
20. Draw a neat diagram of Microfilaria.
21. Name six intestinal nematodes.
22. What is Oxidase test? Write the principle with three examples of oxidase positive bacterias.
23. Give three differences between Streptococcus pneumoniae and Streptococcus pyogenes.

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. (MLT) Degree Examination - 22-May-2023

Time: Three Hours | Max. Marks: 80 Marks

PATHOLOGY – PAPER - II (RS3)
Q.P. CODE: 3158

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

LONG ESSAY (Answer any Two) 2 x 10 = 20 Marks

1. Describe techniques of routine paraffin section cutting, frozen section and cryostat section.
2. Describe preparation of staining of blood film for differential count.
3. Briefly describe:
   a) Bleeding time
   b) Clotting time
   c) Prothrombin time
   d) APTT

SHORT ESSAY (Answer any Six) 6 x 5 = 30 Marks

4. Describe needle Aspiration and surgical biopsy techniques of bone marrow study.
5. Briefly describe investigations for megaloblastic anaemia.
6. Name abnormal haemoglobin pigments. How are they measured?
7. Describe assay of clotting factors.
8. What is quality control in haematology?
9. What is absolute eosinophil count? Describe its measurement.
10. What are the tests of auto-immune hemolytic anaemia?
11. What is microtome? Describe its applications.

SHORT ANWERS (Answer any Ten) 10 x 3 = 30 Marks

12. What are special stains for connective tissue and nervous tissue?
13. Name the mounting techniques.
14. What are uses of dark ground microscope?
15. What is normal Reticulocyte count? Describe variations of Reticulocyte count.
16. What is osmotic fragility test?
17. What are the reagents used for RBC and WBC count?
18. Describe Sickling tests.
19. Applications of microphotography
20. What are the tests of Fibrinolytic activity?
21. Give normal value of platelet count and its variations.
22. What are stages of ESR?
23. Describe cyanmethaemoglobin method.

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Rajiv Gandhi University of Health Sciences, Karnataka

Second Year B.Sc. Medical Laboratory Technology Degree Examination – 17-May-2023

Time: Three Hours | Max. Marks: 100 Marks

BIOCHEMISTRY – II (RS-4)

Q.P. CODE: 3279

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

LONG ESSAYS (Second Question Choice) 2 x 10 = 20 Marks

1. What are enzymes? Explain the factors affecting the role of enzyme catalyzed reactions. Add a note on enzyme specificity

2. What is GTT? Give detailed account of the instructions to be given to the patient and specimen collection at the lab while carrying out oral GTT. Discuss the laboratory analysis and interpretation of the results
   OR
   Write in detail about the examination of abnormal constituents of urine

SHORT ESSAYS (Question No 5 & 10 choice) 10 x 5 = 50 Marks

3. Paper chromatography
4. Urea cycle
5. Isomerisation of monosaccharides
   OR
   Give a brief account of structure of proteins
6. Venous blood collection
7. Creatinine clearance
8. Hot air oven
9. Different types of flasks used in laboratory and its uses
10. Write about the working of spectrophotometer
    OR
    Principle and components of pH meter
11. Analytical and therapeutic role of enzymes
12. Write in detail about peptides and their functions

SHORT ANSWER 10 x 3 = 30 Marks

13. Preservatives used for urine sample
14. Rothera's test
15. Difference between starch and glycogen
16. Epimers
17. Write a note on Ketosis
18. Isoelectric pH
19. Mention any three functions of proteins
20. Write down the principle of nephelometry
21. Give the biochemical importance of amino sugars and glycosides
22. HbA_1C reference range and significance

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year B.Sc. (M.L.T) Degree Examination – 19-May-2023

Time: Three Hours | Max. Marks: 100 Marks

MICROBIOLOGY – II (RS-4)

Q.P. CODE: 3280

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

LONG ESSAYS (Second Question Choice) 2 x 10 = 20 Marks

1. Describe the morphology, life cycle, pathogenicity and clinical manifestations of Entamoeba histolytica

2. Enumerate the organisms causing pyogenic infections. Describe the laboratory diagnosis of Staphylococcus aureus
   OR
   Explain Hospital acquired infections and prevention of Hospital Infection

SHORT ESSAYS (Question No 5 & 10 choice) 10 x 5 = 50 Marks

3. Explain Laboratory diagnosis of Neisseria
4. Explain principle and procedure of Acid fast staining
5. Antibiotic susceptibility test
   OR
   Describe in detail Blood culture
6. Enumerate organism causing Food poisoning. Explain in detail pathogenesis and laboratory diagnosis of Bacillus
7. Explain pathogenicity of Treponemapallidum
8. RNTCP
9. Explain life cycle of Echinococcus
10. Indole test
    OR
    Oxidase test
11. Explain stool examination
12. Peripheral smear examination for Malaria

SHORT ANSWER 10 x 3 = 30 Marks

13. Name three Bile stained Ova
14. Name three Gram negative bacteria
15. Name three parasites causing diarrhoea
16. PUO
17. CAMP Test
18. Neat labelled diagram of Trichomonas vaginalis
19. Name halophilic vibrios
20. Catalase Test
21. Name any three bacteria causing UTI
22. MRSA

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year B.Sc. (M.L.T) Degree Examination – 22-May-2023

Time: Three Hours | Max. Marks: 100 Marks

PATHOLOGY – II (RS-4)

Q.P. CODE: 3281

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

LONG ESSAYS (Second Question Choice) 2 x 10 = 20 Marks

1. Explain Mechanism of Blood Coagulation and Fibrinolytic system

2. Describe the steps of tissue processing
   OR
   What is Microtome? What are the types of microtomes? Write briefly on ultra microtome

SHORT ESSAYS (Question No 5 & 10 choice) 10 x 5 = 50 Marks

3. Describe the steps involved in Haematoxylin and Eosin staining
4. Explain Electron Microscope and add a note on its application
5. Enumerate the Morphology of different types of WBC
   OR
   Describe the staining techniques for Collagen and elastic fibers
6. Osmotic fragility test
7. Discuss the staining principle and procedure for Hemoparasite identification
8. Explain bleeding time, clotting time and Prothrombin time
9. Write briefly on schilling test and its importance
10. Describe estimation of serum iron and iron binding capacity
    OR
    Brief explain the Museum techniques to **display and mount gross specimen.**
11. Enlist the uses of Fluroscent and dark ground microscope
12. Briefly explain Platelet Function Test

SHORT ANSWER 10 x 3 = 30 Marks

13. Normal values of Hemoglobin in adults
14. Microphotography
15. List three types of stem cells
16. Morphology of RBC
17. PTT and PT normal values.
18. List three causes of Eosinophilia.
19. What is regressive staining?
20. What is frozen section? Mention its uses.
21. List three methods of ESR estimation.
22. List three indications for Bone Marrow Biopsy.

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. (MLT) Degree Examination - 23-Nov-2023

Time: Three Hours Max. Marks: 80 Marks

BIOCHEMISTRY – PAPER II (RS3)

Q.P. CODE: 3156

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

LONG ESSAY (Any Two) 2 x 10 = 20 Marks

1. Enumerate the steps of urea cycle and mention the disorders associated with this pathway.
2. Outline the reactions of glycolysis. Add a note on its energetics.
3. Write principles, components, operation and care and maintenance of spectrophotometer.

SHORT ESSAY (Any Six) 6 x 5 = 30 Marks

4. Degradation of purine nucleotides.
5. Preparation of calibration curve using stock standard solution.
6. Classify the proteins based on their functions with example.
7. Explain noncompetitive inhibition with example.
8. Biochemical functions of thiamine.
9. Anticoagulants and urine preservatives.
10. Osmometry – principle, instrumentation and applications.
11. Structure of DNA.

SHORT ANWERS (Any Ten) 10 x 3 = 30 Marks

12. Ascetic fluid.
13. How to prepare 500 ml of 0.5 HC1 from stock HC1 solution.
14. Preparation of patient for oral glucose tolerance test.
15. Denaturation of proteins.
16. Mention the order of draw of blood when multiple tests need to be done and multiple vacuum tubes used are used in sample collection.
17. What is an antivitamin? Give two examples.
18. What are the analytical role of immobilized enzymes?
19. What is insulin? Mention its medical importance.
20. What is BUN? How do you calculate BUN using urea level? Mention any one condition in which BUN is increased.
21. Name any test used to analyse organic constituent of normal urine and write its principle.
22. Enumerate any three tests done to assess functions of kidney.
23. Rf value – calculation and use.

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Rajiv Gandhi University of Health Sciences, Karnataka

Second Year B.Sc. (M.L.T) Degree Examination – 23-Nov-2023

Time: Three Hours | Max. Marks: 100 Marks

BIOCHEMISTRY – II (RS-4)

Q.P. CODE: 3279

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

LONG ESSAYS (Second Question Choice) 2 x 10 = 20 Marks

1. Explain the principle of centrifugation and discuss different types of centrifuges. Add a note on the maintenance of Centrifuge
2. Explain the structural classification of protein and its function
   OR
   Describe the steps of Urea Cycle and its disorder. Add a note on BUN

SHORT ESSAYS (Question No 5 & 10 choice) 10 x 5 = 50 Marks

3. What is molarity and explain how to prepare IM NaoH
4. Explain the properties and biomedical importance of Sucrose
5. Explain the Arterial blood collection Technique
   OR
   Briefly explain the cleaning of glass ware and plastic ware
6. Describe the working principle of Colorimeter and limitations of Beer-Lambert's Law
7. Diabetes mellitus, diagnosis and management.
8. Chemical Examination of Urine
9. Briefly explain the Principle, Instrumentation and applications of Glucometer
10. What are enzymes? Add a note on Enzyme inhibition
    OR
    Principles and procedure for Agarose Gel Electrophoresis
11. Preparation of protein free filtrate for quantitative analysis
12. Briefly explain the principle, care, maintenance and applications of Hot air oven

SHORT ANSWER 10 x 3 = 30 Marks

13. Folin Wu tube
14. Cold Box
15. Dessicator
16. Percent Solutions
17. Biological importance of peptide bond
18. Isoelectric P^H of amino acids.
19. Coenzymes
20. Rothera's test
21. Oral Glucose Tolerance Test
22. Turbidimetry

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. (MLT) Degree Examination – 02-Dec-2023

Time: Three Hours | Max. Marks: 80 Marks

PATHOLOGY – II (RS3)
Q.P. CODE: 3158

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

LONG ESSAYS (Answer any Two) 2 x 10 = 20 Marks

1. Describe tests for the Laboratory diagnosis of megaloblastic anemia
2. Define erythrocyte sedimentation rate. Describe the stages. Write in detail the procedure for estimation of ESR with normal values.
3. Describe the steps in automated tissue processing in histopathology laboratory.

SHORT ESSAYS (Answer any Six) 6 x 5 = 30 Marks

4. Freezing microtome.
5. Direct Coombs test.
6. Principle and uses of PAS stain.
7. Haematocrit
8. Cell block preparation and its utility.
9. Absolute Eosinophil count.
10. Microtome knives.
11. What are Romanowsky stains? Give examples and staining procedure of any one of them.

SHORT ANSWERS (Answer any Ten) 10 x 3 = 30 Marks

12. Osmotic fragility test.
13. ICDS coding and classification.
14. Name three Red Cell Indices.
15 Dark ground illumination microscopy.
16. List three important coagulation tests.
17. Types of haematoxylin.
18. Write the principle of Sickling test.
19. Kaiserling's solution and its uses.
20. What is the normal platelet count and give two causes of thrombocytopenia.
21. Name three connective tissue stains.
22. Components of WBC diluting fluid.
23. Name three embedding media.

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Rajiv Gandhi University of Health Sciences, Karnataka

Second Year B.Sc. (M.L.T) Degree Examination – 02-Dec-2023

Time: Three Hours | Max. Marks: 100 Marks

PATHOLOGY – II (RS-4)

Q.P. CODE: 3281

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

LONG ESSAYS (Second Question Choice) 2 x 10 = 20 Marks

1. Preparation and staining of blood films.
2. Describe the procedure of frozen section. Mention the indications of Frozen section.
   OR
   Describe the steps in tissue processing for paraffin embedding.

SHORT ESSAYS (Question No 5 & 10 choice) 10 x 5 = 50 Marks

3. Haematocrit.
4. Prothrombin time and partial thromboplastin time.
5. Application of computer in pathology.
   OR
   Mounting techniques.
6. Calculation of red cell indices.
7. Progressive and regressive staining methods.
8. Reticulocyte count.
9. Demonstration of LE cell.
10. Decalcification.
    OR
    Indexing and record keeping in histopathology.
11. Coomb's test.
12. Write the sites for Bone Marrow aspiration. List the cells found in normal bone marrow.

SHORT ANSWER 10 x 3 = 30 Marks

13. Heinz bodies.
14. Types of microtome knives.
15. Write three causes of Thrombocytopenia.
16. EDTA.
17. Megaloblast.
18. Sickling test.
19. DPX
20. Care of microscope.
21. Preparation of Eosin stain.
22. Mention three application of microphotography.

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