Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (MLT) Degree Examination - 15-May-2025

Time: Three Hours **Max. Marks: 80**

BIOCHEMISTRY – PAPER III (RS-3)

Q.P. CODE: 3159

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 pathway of Beta oxidation of Palmitic acid. Add a note in its energetics and significance
2. Define Principle of electrophoresis and discuss the procedure of serum protein electrophoresis by Agarose gel electrophoresis method and its clinical significance
3. Give an account of nutritional importance of Proteins and lipids

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

4. Add a note on different types of automation in clinical laboratory
5. Isoenzymes and their clinical significance
6. Explain Visual cycle
7. Fredericksons's classification of hyper lipoproteinemias
8. Role of Blood buffers in regulation of blood pH
9. Write the principle, types and applications of ELISA
10. Discuss in detail various Thyroid Function Tests
11. Levey-Jennings' control chart and Westgard rules

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

12. Disorders of Fructose metabolism
13. Point mutation
14. Haemolytic Jaundice
15. Cardiac Troponins
16. Prostate specific antigen
17. Kwashiorkar
18. Write the normal values of Amylase, Lipase, CK-MB
19. Van-den Bergh test
20. Hypocalcemia
21. Composition of Renal stones
22. Detoxification by conjugation
23. Write the significance of HMP pathway

Rajiv Gandhi University of Health Sciences, Karnataka

Third Year B.Sc. Medical Laboratory Technology Degree Examination – 15-May-2025

Time: Three Hours **Max. Marks: 100 Marks**

BIOCHEMISTRY – III (RS-4)

Q.P. CODE: 3282

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. Define variables. Write a note on pre-analytical, analytical and post analytical variables
2. Write a note on theory of formation and analysis of renal and gall stones

   OR

   Describe various tests employed to assess liver function

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

3. Classification and characteristics of tumor markers
4. HMP shunt pathway
5. Functions of thyroid hormones

   OR

   Salient features of genetic code
6. ELISA and its application
7. Types of jaundice
8. Point of care testing
9. Quality control charts
10. Write a note on mutations

    OR

    Lipoproteins and their significance
11. AFP (Alpha Feto Protein)
12. Glycogen storage disorders

SHORT ANSWER **10 x 3 = 30 Marks**

13. Isoenzymes
14. CA-125
15. Normal serum levels of total bilirubin and its significance
16. Enumerate the steps of protein synthesis
17. Functions of albumin
18. Gout
19. Sensitivity and specificity
20. **Arterial blood gas analyzer**
21. Biological important compounds synthesized form cholesterol
22. Order of sample draw for venous blood collection

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (MLT) Degree Examination - 20-May-2025

Time: Three Hours **Max. Marks: 80 Marks**

MICROBIOLOGY - PAPER III (RS-3)
Q.P. CODE: 3160

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. Define immunity and classify. Explain mechanisms of innate immunity.
2. Enumerate Hepatitis Viruses. Describe morphology, laboratory, diagnosis and prophylaxis of Hepatitis B Virus.
3. Explain properties, classification, clinical types and laboratory diagnosis of Dermatophytes.

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

4. Explain morphological classification of fungi.
5. Primary and secondary immune response.
6. Agglutination tests.
7. Polio Vaccines.
8. Cryptococcosis.
9. Mechanisms of Autoimmunity.
10. Pathogenesis and laboratory diagnosis of Dengue fever.
11. Cultivation of viruses.

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

12. Structure of HIV.
13. Types of Antigens.
14. Ig A
15. Type IV hypersensitivity.
16. **Name three immunodeficiency diseases**
17. Name three dimorphic fungi.
18. Germ tube test.
19. Prions.
20. Cytopathic Effect.
21. SDA.
22. Give three examples of RNA viruses.
23. Name three species of Aspergillus.

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Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (MLT) Degree Examination - 22-May-2025

Time: Three Hours **Max. Marks: 80 Marks**

PATHOLOGY – PAPER III (RS-3)
Q.P. CODE: 3161

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 blood group systems. Discuss their applications in transfusion practice.
2. Enumerate the types of structural abnormalities in chromosomes with examples.
3. Discuss in brief about the anatomy histology and physiology of respiratory tract.

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

4. Blood donor selection
5. Image analysis
6. Sex chromatin identification
7. Shorr's stain
8. HLA antigens and their significance
9. Carbon dioxide incubator
10. Fine needle aspiration cytology
11. Preservation of Immortalized cell lines

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

12. Care of microscope
13. ACD solution
14. Pap smear finding in carcinoma cervix
15. Bombay blood group
16. Major cross matching
17. Triploidy
18. Uses of inverted microscope
19. Maturation index
20. CSF in viral meningitis
21. Principles of plasmapheresis
22. Normal cytology of urine sediment
23. Translocation

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Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (M.L.T) Degree Examination – 20-May-2025

Time: Three Hours **Max. Marks: 100 Marks**

MICROBIOLOGY – III (RS-4)
Q.P. CODE: 3283

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. Discuss morphology, pathogenesis and laboratory diagnosis and prophylaxis of Rabies.
2. Discuss and classify antibody. Discuss the structure and function of Immunoglobulins.
   OR
   Classify Immunity. Discus mechanism of Innate Immunity.

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

3. Enumerate dimorphic fungi and discuss briefly laboratory diagnosis of dimorphic fungi.
4. Laboratory diagnosis of Epstein- Barr virus.
5. Pathogenesis and laboratory diagnosis of Dengue.
   OR
   Bacteriophage.
6. Pathogenesis and prophylaxis of Rubella.
7. Mycotoxins.
8. Inclusion bodies.
9. ELISA.
10. Mechanism of autoimmunity.
    OR
    Mycetoma.
11. Prophylaxis of Polio.
12. Structure and pathogenesis of Influenza virus.

SHORT ANSWER **10 x 3 = 30 Marks**

13. Antigens.
14. Name the three genera of dermatophytes.
15. Slide culture technique.
16. Hepatitis A virus.
17. Local Immunity.
18. Draw a neat labelled diagram of HIV.
19. Candidiasis.
20. Oncogenic viruses.
21. Cell culture.
22. Aspergillosis.

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (M.L.T) Degree Examination – 22-May-2025

Time: Three Hours **Max. Marks: 100 Marks**

PATHOLOGY – III (RS-4)
Q.P. CODE: 3284

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. List blood components. Describe the method of preparation of platelet concentrate. Add a note on storage of platelets.
2. Mention the stains used in cytology. Write the principle and preparation and staining method of may grunwald Geimsa Stain.
   OR
   Discuss the principle and equipment used in flow cytometry. Add a note on its uses in the diagnosis.

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

3. Fresh frozen plasma.
4. Advantages and disadvantages of FNAC.
5. ABO blood group system.
   OR
   Cell Block preparation.
6. Cytological fixatives.
7. Quality control in blood bank.
8. Tests for transfusion transmitted infections.
9. Histology and normal cytology of salivary gland.
10. Principle and use of immunohistochemistry.
    OR
    Blood containers, anticoagulants and storage of blood and blood components.
11. Various banding techniques.
12. Oncogenes.

SHORT ANSWER **10 x 3 = 30 Marks**

13. List three infections diagnosed in PAP smear.
14. List three transfusion transmitted diseases.
15. Colchicines.
16. Normal cell structure.
17. Write three differences between benign and malignant cells.
18. Laminar flow equipment.
19. Major cross matching.
20. Sub groups of A & B
21. Schorr stain.
22. Normal cytology of endometrium.

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (MLT) Degree Examination - 27-Oct-2025

Time: Three Hours **Max. Marks: 80**

BIOCHEMISTRY – PAPER III (RS-3)

Q.P. CODE: 3159

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. Discuss the formulation and fate of bilirubin in the body
2. Define quality control. Add a note on internal quality control programme, L.J chart, Westguard's rule
3. Write the sources, RDA, absorption and biochemical functions of calcium

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

4. Protein energy malnutrition (PEM)
5. Atomic absorption Spectrophotometry
6. Cardiac markers
7. Post Transcriptional and Post translational modifications
8. Write the sources, RDA and functions of vitamin D
9. Accute phase proteins and their importance
10. Acidosis
11. Name the different ketone bodies. Add a note on metabolism of ketone bodies

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

12. Tumor suppressor genes
13. Normal levels of serum electrolytes
14. Diagnostic significance of pancreatic enzymes
15. Define recommended dietary allowance (RDA)
16. Functions of vitamin K
17. Describe in detail POCT devices with example
18. Write the procedure of arterial blood collection
19. Name the Hormones assessed in thyroid disorders with their normal levels
20. Physical examination of Renal calculi
21. Isoenzymes of LDH
22. CA-125
23. Name the enzyme defect in Galactosemia, Hereditary fructose intolerance, fructosuria

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Year B.Sc. Medical Laboratory Technology Degree Examination – 27-Oct-2025

Time: Three Hours **Max. Marks: 100 Marks**

BIOCHEMISTRY – III (RS-4)

Q.P. CODE: 3282

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, procedure of separation of plasma proteins by Agarose gel electrophoresis. Draw the normal pattern obtained by this technique
2. Explain the steps of HMP shunt pathway. What is the significance of this pathway?

   OR

   What is Replication? Give a brief account of the process of replication

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

3. Posttranscriptional modifications
4. Levy Jennings plot and its importance
5. Enzyme markers in liver disease

   OR

   Fate of bilirubin in the body
6. Principle and applications of Chemiluminescence
7. Renal calculi – composition and analysis
8. Lipoproteins and their functions
9. Preparation of calibration curve and its utility in laboratory
10. Structure of tRNA

    OR

    Salient features of tumour markers
11. Automation in laboratory
12. Tubular function tests in renal assessment of kidney

SHORT ANSWER **10 x 3 = 30 Marks**

13. Give any three examples for preanalytical variables
14. Enzyme defect and features of Maple syrup urine disease
15. Prostate specific antigen
16. Test for Microalbumin and its importance
17. Name the enzyme defect in Galactosemia and Hereditary fructose intolerance
18. Mention any three functions of plasma proteins
19. Give two examples for Westgard rules for qc rejection
20. Vandenberg's test – principle and interpretation
21. Atherosclerosis
22. Name the branched chain aminoacids

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (MLT) Degree Examination - 29-Oct-2025

Time: Three Hours **Max. Marks: 80 Marks**

MICROBIOLOGY – PAPER III (RS-3)
Q.P. CODE: 3160

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. List the hypersensitivity reactions. Write in detail about Type-1 Hypersensitivity reactions.
2. Enumerate the viruses causing hepatitis. Discuss the morphology, pathogenesis, laboratory diagnosis and prophylaxis of Hepatitis-B virus.
3. Enumerate the infections caused by Candida species. Describe the laboratory diagnosis of Candidiasis.

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

4. ELISA – principle, types and applications.
5. Cultivation of viruses.
6. Herpes-Zoster virus – pathogenicity and laboratory diagnosis.
7. Discuss in detail about pathogenesis and laboratory diagnosis of rabies.
8. Differences between primary and secondary immune responses.
9. Passive immunity.
10. Slide culture technique.
11. Aspergillosis.

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

12. Dengue virus – pathogenicity.
13. LPCB mount.
14. Classify fungi based on diseases caused.
15. Name any three DNA viruses.
16. Name any three precipitation reactions.
17. Name any three viral diarrhoeal diseases.
18. Name any three antiretroviral drugs.
19. Antigen presenting cells.
20. Name any three fungi causing skin infections.
21. Mycotoxins.
22. Natural killer cells.
23. Name any three serological tests for the diagnosis of HIV infection.

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Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (MLT) Degree Examination - 31-Oct-2025

Time: Three Hours **Max. Marks: 80 Marks**

PATHOLOGY – PAPER III (RS-3)
Q.P. CODE: 3161

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. Define Karyotope. Describe the procedure of karyotyping from peripheral lymphocytes.
2. Mention donor selection criteria in detail.
3. Discuss the technique of collection of specimens for cervical cytology.

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

4. Discuss the normal cytology of respiratory system.
5. Describe the method of demonstration sex chromatin.
6. Inverted microscope.
7. Papanicolaou staining – principle, procedure and interpretation.
8. Describe the principle of working for Cytocentrifuge.
9. Discuss Bombay blood group.
10. Quality control in blood bank.
11. Applications of immunohistochemistry.

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

12. **Apheresis**
13. Karyopiknotic index.
14. Principle of Coomb's test.
15. List three advantages of FNAC
16. Name three fixative used in cytology.
17. Classify chromososomes according to the centromere position.
18. Give three examples for oncogenes.
19. List any three donor adverse reactions.
20. Describe the principle of Flow cytometry.
21. Describe the Intermediate cell.
22. List three used of cryoprecipitate.
23. List blood grouping systems.

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Rajiv Gandhi University of Health Sciences, Karnataka

Third Year B.Sc. Medical Laboratory Technology Degree Examination – 29-Oct-2025

Time: Three Hours **Max. Marks: 100 Marks**

MICROBIOLOGY – III (RS-4)
Q.P. CODE: 3283

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. Define and classify Immunity. Discuss innate immunity
2. Enumerate sexually transmitted viruses. Describe the morphology, pathogenesis and laboratory diagnosis HIV

   OR

   Enumerate the Arbovirus seen in India. Describe the pathogenesis, laboratory diagnosis of Dengue. Add a note on its complications

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

3. Aspergillosis
4. Monoclonal antibodies
5. Laboratory diagnosis of Rabies

   OR

   Pneumocystii carnii pneumonia – pathogenicity and lab diagnosis
6. Cryptococcus neoformans – pathogenicity and lab diagnosis
7. Serological marker of hepatitis B
8. IgG – structure and function
9. Type III hypersensitivity
10. Epstein Barr Virus – pathogenicity and lab diagnosis

    OR

    Sporotrichosis – pathogenicity and lab diagnosis
11. ELISA
12. Prophylaxis polio

SHORT ANSWER **10 x 3 = 30 Marks**

13. Draw a neat labelled diagram of embyonated egg
14. Germ tube test
15. Name three viruses which causes diarrhoea
16. Heterophile antigen
17. Reverse passive agglutination
18. Name three Oncogenic virus
19. Name three autoimmune disease
20. Name three viruses causing zoonotic disease
21. Keratomycosis
22. KoH mount

Rajiv Gandhi University of Health Sciences, Karnataka

Third Year B.Sc. Medical Laboratory Technology Degree Examination – 31-Oct-2025

Time: Three Hours **Max. Marks: 100 Marks**

PATHOLOGY – III (RS-4)

Q.P. CODE: 3284

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 methods of collection of specimens from respiratory tract for cytological examination along with the preparation and staining of smears
2. Describe the principle of immunohistochemistry and list five marker and its significances
   OR
   Enumerate various transfusion reaction. Explain the screening of blood for infective material

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

3. Hormonal cytology of female genital tract and cytological indices
4. Coomb's test
5. Laminar air flow equipment
   OR
   Quality control in blood bank
6. May Grunwald Geimsa stain
7. Explain about blood containers and anticoagulants used in blood bank
8. **Describe the preparation of 5% cell suspension. Add a note on Cross matching**
9. Component therapy in blood blank
10. Histology and physiology of thyroid gland
    OR
    Cytology of Endometrium
11. Oncogenes
12. Explain different methods of blood grouping

SHORT ANSWER **10 x 3 = 30 Marks**

13. Barr body
14. Anatomy of lymph nodes
15. Mention three advantages of FNAC
16. Bombay blood group
17. Use and care of microscope
18. Maturation index
19. List three difference between Transudate and exudate
20. Donor selection criteria
21. **Peripheral smear**
22. What is flow cytometry?