Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. (MLT) Degree Examination – 13-May-2025

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 the methods of collection of blood and anticoagulants used in hematology lab.
2. Enumerate the methods of hemoglobin estimation. Describe cyanmethemoglobin method in detail.
3. Automated tissue processor.

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

4. Myelopoiesis.
5. Write the differences between intra and extra vascular Hemolysis.
6. Application of computers in pathology.
7. Enumerate types of hematoxylin. Describe the steps to prepate hematoxylin stain.
8. Estimation of fibrin degradation products.
9. Erythrocyte sedimentation rate.
10. Automated Slide stainer.
11. Briefly describe maintenance of records and filing of slides.

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

12. List types of poikilocytes.
13. Leuckhart's L pieces – uses.
14. What is stropping?
15 List the clearing agents.
16. Uses of microphotography.
17. Uses of fluorescent microscope.
18. Name types of eosin.
19. What is progressive stain? Give examples.
20. Normal values of differential count.
21. Causes of Eosinophilia.
22. How will you demonstrate hemosiderin in urine?
23. Name the special tests in Leukemia.
    Or
    Name three Abnormal hemoglobin pigments

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year B.Sc. (M.L.T) Degree Examination – 08-May-2025

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. Classify cestodes. Give a detailed account of morphology, life cycle, pathogenicity and laboratory diagnosis of *Echinococcus granulosis*.

2. Enumerate bacteria causing Enteric fever. Describe the lab diagnosis of Enteric fever
   OR
   Explain morphology, pathogenicity and laboratory diagnosis of *Trichomonas Vaginalis*

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

3. Stormy clot fermentation
4. **Explain life cycle of plasmodium falciparum**
5. Lab diagnosis of staphylococcus
   OR
   Write life cycle of Fasciola
6. Lab diagnosis of Gonorrhea
7. AST
8. Blood Culture
9. Explain in detail Hanging drop preparation
10. Prophylaxi for Diptheria
    OR
    Explain in detail E.coli diarrheagenic
11. Laboratory diagnosis of Anthrax
12. **Briefly explain the principle, care, maintenance and applications of Incubator.**
    Or
    Pathogenesis and laboratory diagnosis of tuberculosis

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

13. Montoux test
14. **Coagulase test**
15. Buffy coat test
16. Elek's gel precipitation test
17. Name three bacterias which causes pyogenic Infections
18. Egg of *Trichuri's Trichiura*
19. Name any three organisms causing hospital acquired infections
20. Hydatid cyst
21. **Microfilaria of wuchereriabancrafti**
22. Name three bacteria causing UTI

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year B.Sc. (M.L.T) Degree Examination – 13-May-2025

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. Write in detail about tissue processing, decalcification and section cutting.
2. Write different methods of haemoglobin estimation and write in detail about cyanmethemoglobin method.

   OR

   Write about administration in hematology and quality control.

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

3. Investigation of G6PD deficiency.
4. Mounts and mounting techniques.
5. Museum technology.

   OR

   Microphotography and its applications.
6. Maintainance of records in Histopathology.
7. ICDS classification and coding.
8. **Osmotic fragility test**
9. Mechanism of blood coagulation.
10. Bone marrow biopsy study.

    OR

    Erythropoiesis.
11. LE cell preparation.
12. Cytochemistry.

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

13. Name the stains used for reticulocyte count.
14. Mean corpuscular volume.
15. Partial thromboplastin time.
16. Normal values of RBC and WBC count.
17. Urine Hemosiderin.
18. Three types of Hematoxylin.
19. Morphology of eosinophil.
20. Buffy coat.
21. Perl’s stain.
22. Stem cells.

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year M.Sc. (MLT) Degree Examination - 22-May-2025

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

HAEMATOLOGY and BLOOD TRANSFUSION - PAPER – II (RS3)

Q.P. CODE: 8043

Your answers should be specific to the questions asked.

Draw neat labeled diagrams wherever necessary.

Answer All The Questions **10 X 10 = 100 Marks**

1. Write about blood transfusion reactions.
2. Define haemapheresis. Write in detail about plasmapheresis.
3. Discuss about the transfusion transmitted diseases in blood bank.
4. Give a detailed account of automation in blood banking.
5. Indications for blood transfusion and uses of various blood components.
6. Disposal of waste in blood bank.
7. Describe stem cell processing and storage.
8. Describe in detail about donar selection in blood bank.
9. Discuss graft vs host reaction.
10. Explain compatibility testing.

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. (MLT) Degree Examination - 23-May-2025

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. Discuss site, reactions and energetics of Krebs' citric acid cycle
2. Discuss principle, instrumentation and applications of partition chromatography
3. Explain the technique of venous sample collection. Add a note on instructions to be given to patients for timed sample collection

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

4. Classify enzymes with suitable example
5. List any FIVE functions of carbohydrates
6. Name the coenzyme forms of Niacin. Write any THREE reactions requiring them as coenzyme
7. Explain secondary structure of proteins
8. Write the principle of any ONE method of estimation of Blood Urea Nitrogen. Mention any THREE conditions in which it is increased
9. Structure and function of tRNA
10. Tests for tubular functions of kidney
11. Name the tests used for the detection of abnormal constituents of urine. Write the principle of any ONE of them

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

12. What is absolute specificity? Give ONE example
13. What are antivitamins? Give TWO examples
14. What is transamination? Give ONE example
15. Principle of glucometer
16. Name the different grades of chemicals with their uses
17. Preparation of 500 ml of 0.9% NaC1 solution
18. How to prepare calibration curve using stock standard solution?
19. What are anomers? Give TWO examples
20. What is rate reaction method? Name any TWO rate reaction methods used in quantitative estimation
21. Name any THREE organic constituents of normal urine. Mention the tests used for their detection in urine
22. Explain about the oral glucose tolerance test
23. Criteria for diagnosis and management of Diabetes mellitus

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Rajiv Gandhi University of Health Sciences, Karnataka

Second Year B.Sc. (M.L.T) Degree Examination – 23-May-2025

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. Mention the normal and abnormal constituents of urine. Write in detail about examination of abnormal constituents of Urine.

2. Write the principle, procedure and applications of paper chromatography.
   OR
   Explain principle, instrumentation and applications of spectrophotometry. Add a note on standardization of spectrophotometer.

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

3. Write the principle, instrumentation and applications of Turbidometry.
4. Describe the working of p^H meter.
5. Write the types of weighting balances. Add a note double pan balance.
   OR
   Principle, instrumentation and applications of Glucometer.
6. Explain with example Competitive inhibition.
7. Different types of flasks used in laboratory and its uses.
8. Write in detail about the types, symptom, management and diagnosis of Diabetes Mellitus.
9. Urea cycle and disorders.
10. Define normality give the formula to calculate the normality of concentrated sulphuric acid. How to prepare 100ml of 1N sulpluric acid.
    OR
    Saturated and supersaturated solutions.
11. Synthesis of creatinine and its significance.
12. Give a brief account of Mucopolysaccharides.

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

13. Preparation of protein free filtrate.
14. Benedict's test.
15. Describe various anticoagulants used in blood sample collection.
16. What are the functions of protein?
17. Define a) Tripod stand b) Cuvette c) Folin-Wu
18. Quaternary structure of proteins.
19. Epimers.
20. Refrigerators.
21. Definition and classification of SI units.
22. Ketosis.

Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. (MLT) Degree Examination - 28-Oct-2025

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. Define glycogenesis and glycogenolysis. Write the reactions of glycogenesis and glycogenolysis in liver
2. Give an account of the chemistry, RDA, sources of vitamin C? Enumerate its biochemical functions and deficiency manifestations
3. Discuss principle, components, care and maintenance of spectrophotometer

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

4. Mention different types of enzyme inhibition. Explain competitive inhibition with example
5. What are heteropolysaccharides? Add a note on four functions of heteropolysaccharides
6. Classify proteins with example based on function
7. Outline the reactions of degradation of purine nucleotides
8. How to collect 24 hours urine sample? Name urine preservatives
9. Structure and function of DNA
10. Procedure and interpretation of creatinine clearance test
11. Define accuracy and precision. Explain how to prepare a calibration curve using stock standard solutions

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

12. What are immobilized enzymes? Give TWO examples
13. Molecular defect and features of Phenylketonuria
14. Analysis of ascetic fluid
15. How to prepare 500 ml of 1N NaOH solution?
16. What are epimers? Give example
17. Define isoelectric pH of proteins. Give TWO examples
18. What are coenzymes? Give TWO examples
19. **What is end point method? Name any two end point methods used in quantitative estimation**
20. Write the significance of HbA1c
21. Principle of test used for the detection of urea in urine
22. Procedure of Benedict's test
23. Principle and applications of nephelometry

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. (MLT) Degree Examination - 30-Oct-2025

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

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. Name the etiological agents of Enteric fever. Describe the pathogenicity and laboratory diagnosis of Typhoid fever
2. Describe the morphology, life cycle, pathogenicity and laboratory diagnosis of Ascaris lumbricoides
3. Classify Spirochaetes. Discuss the morphology and laboratory diagnosis of Treponema pallidium

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

4. Explain the laboratory diagnosis of Wuchereria bancrofti
5. Write a note on Enzymes and toxin produced by Staphylococcus aureus
6. Write a brief note on Kirby Bauer method of antibiotic susceptibility testing
7. Write the principle, procedure and interpretation of C-Reactive protein
8. Explain the laboratory diagnosis of gas gangrene
9. Explain the life cycle of hookworm
10. **Write a note on Prophylaxis of Cystitercosis**
11. Explain the process of bacteriological examination of water

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

12. Describe the morphology of Trichomonas vaginalis
13. Enumerate the bacteria causing meningitis
14. Write a note in Elek's gel precipitation test
15. Write the principle and interpretation of Mantoux test
16. Name any three organism causing hospital – acquired infections
17. Define significant bacteriuria
18. Write down the post streptococcal complications
19. Name any three spore forming bacteria
20. Write the principle, procedure and interpretation of Indole test
21. Write a note on larva migrans
22. Define a vector. Give two examples
23. Name three bacterial vaccines

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Rajiv Gandhi University of Health Sciences, Karnataka

Second Year B.Sc. Medical Laboratory Technology Degree Examination – 28-Oct-2025

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. Write the principle, instrumentation, operation and applications of thin layer chromatography

2. Explain the principle of reflectance photometry. Mention about glucometer
   OR
   Describe about types and management of diabetes mellitus

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

3. Classify enzymes with examples
4. Procedure of venous blood sample collection
5. Precipitation reaction s of proteins
   OR
   Explain principle and working of water distillation apparatus with diagram
6. Properties of amino acids
7. Denaturation of proteins
8. Use, cleaning and maintenance of different glass wares used in laboratory
9. Write about laboratory hazards
10. Glycated HbA_1C formation, biological reference intervals and clinical significance
    OR
    Saturated and supersaturated solution
11. Effect of substrate concentration on enzyme activity
12. Principle, components and working of centrifuge

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

13. Invert sugar
14. Benedict's test
15. Limitation of Beer – Lamberts law
16. Incubators
17. Definition and classification of international system of units
18. Dessicator and its uses
19. Significance of blood urea and serum creatinine
20. Immobilized enzymes
21. Heteropolysaccharides
22. Significance of borosilicate glass

Rajiv Gandhi University of Health Sciences, Karnataka

Second Year B.Sc. (M.L.T) Degree Examination – 30-Oct-2025

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, pathogenicity and laboratory diagnosis of Diphtheria.
2. Describe the morphology, cultural characters, pathogenecity and laboratory diagnosis of vibrio cholerae.
   OR
   Describe the life cycle, pathogenicity and laboratory diagnosis of Plasmodium falciparum.

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

3. Enzymes produced by Staphylococcus aureus.
4. Tuberculin Test.
5. Sexually transmitted bacterial diseases.
   OR
   Lifecycle of Hookworm.
6. Kala azar.
7. Pathogenesis and laboratory diagnosis of Gonococci.
8. Nosocomial Infections.
9. Bacillus Anthracis.
10. **Laboratory diagnosis of Pseudomonas**
    OR
    Life cycle of Trichomonas vaginalis.
11. **Write the life cycle of Tape worm**
12. Pathogenesis and laboratory diagnosis of Ascaris lumbricoides.

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

13. Botulism.
14. Concentration method for stool examination.
15. Toxoplasma gondii.
16. Name any three organisms that cause urinary tract infections.
17. VDRL test.
18. Define Zoonoses. Name two bacteria that cause zoonotic infections.
19. Name three bacteria that cause Meningitis.
20. L.D Bodies.
21. Black water Fever
22. Coagulase Test.

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