Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (MLT) Degree Examination - 30-May-2024

Time: Three Hours | Max. Marks: 80 Marks

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. Give a detailed account of lipoprotein metabolism.
2. Write the sources, RDA, chemistry, mechanism of absorption, biochemical functions, deficiency manifestations and toxicity symptoms of vitamin A.
3. Explain the various aspects of clinical laboratory automation.

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

4. ELISA
5. Explain transcription.
6. Metabolism of galactose and its associated disorders
7. Acid Base disorders
8. Types of Mutations
9. Laboratory evaluation of cardiac markers
10. Jaundice
11. Westgard Rules

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

12. Albumin
13. Tetany
14. Functions of cholesterol
15. Biological reference intervals
16. RDA
17. Normal serum values of: (a) potassium (b) sodium (c)chloride
18. β-Human Chorionic Gonadotropin
19. Anion gap
20. Units of enzyme activity
21. Explain: (a) Accuracy (b) Precision (c) Specificity.
22. C-reactive protein
23. Composition of gall stones

Rajiv Gandhi University of Health Sciences, Karnataka

Third Year B.Sc. Medical Laboratory Technology Degree Examination – 30-May-2024

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 in detail the process of clinical laboratory automation
2. Enumerate the functions of thyroid hormones. Describe the various thyroid function tests

   OR

   Explain about electrophoretic separation of plasma proteins

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

3. Laboratory safety measures
4. Quantitative analysis of CSF and its clinical interpretation
5. Jaundice

   OR

   High performance liquid chromatography
6. Atherosclerosis and coronary artery diseases
7. HMP shunt pathway and its significance
8. Quality control charts
9. Diagnostic and prognostic use of cardiac markers
10. Osmometry

    OR

    Acid base disorders
11. Glycogen storage disorder
12. Colour codes of vacutainer tubes and its uses

SHORT ANSWER 10 x 3 = 30 Marks

13. Lesch Nyhan syndrome
14. Gout
15. Creatinine clearance test
16. Function of lipoproteins
17. Chemiluminescence
18. HbA1c
19. Maple syrup urine
20. Isoenzyme
21. Name the branched chain amino acids
22. Enzymes involved in DNA replication

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (MLT) Degree Examination - 03-Jun-2024

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. Enumerate Antigen-Antibody reactions. Explain ELISA.
2. Explain the morphology, pathogenicity, laboratory diagnosis and prophylaxis of polio virus.
3. Classify fungi. Discuss in detail about pathogenicity and laboratory diagnosis of candidiasis.

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

4. Dimorphic fungi.
5. Structure of Immunoglobulin.
6. Differences between HSV-1 and HSV-2
7. Laboratory diagnosis of Fungal infections.
8. Type IV hypersensitivity reaction.
9. Define Arboviruses. Mention general properties and classify with examples.
10. Sources and modes of transmission of infection.
11. Laboratory diagnosis of HIV.

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

12. Serological markers in Hepatitis-B infection.
13. Differences between Active and Passive immunity.
14. Give three examples for Autoimmune disorders.
15. General properties of Viruses.
16. Monoclonal antibodies.
17. Give three examples for viral haemorrhagic fevers.
18. Complements fixation test.
19. Inclusion bodies.
20. Slide culture technique.
21. Classify fungal diseases and give example.
22. Name three species of Aspergillus.
23. Name three fungi producing mycotoxins.

**

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (MLT) Degree Examination - 05-Jun-2024

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. List the components prepared from whole blood. Discuss in detail the preparation, storage and uses of each one.
2. Describe Karyotypic analysis. Add a note on classification and nomenclature of human chromosomes.
3. What is fine needle aspiration cytology? List the applications, advantages and disadvantages.

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

4. Donor selection criteria
5. List various methods of preparation of material for cytological examination.
6. Discuss methods of ABO blood grouping.
7. Indirect Coomb's test
8. Role of anticoagulants in blood bank
9. Discuss the post donation advice given to the blood donor.
10. Transfusion reaction work up
11. List five differences between exudates and transudate.

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

12. List three stains used in cytology.
13. Barr body
14. Principle of PAP stain
15. List three cytologic criteria for malignancy.
16. Compatibility testing
17. List three viruses transmitted by blood transfusion.
18. Fresh frozen plasma
19. Weak D antigen
20. Flow cytometry
21. Inverted microscope
22. Maturation index
23. GTG banding

*****

Rajiv Gandhi University of Health Sciences, Karnataka

Third Year B.Sc. Medical Laboratory Technology Degree Examination – 03-Jun-2024

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 hypersensitivity. Discuss type II hypersensitivity
2. Enumerate hepatotropic viruses. Describe the pathogenesis, laboratory diagnosis and prophylaxis of Hepatitis B virus.

   OR

   Classify Picornavirus. Describe the pathogenesis, laboratory diagnosis and prophylaxis of polio.

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

3. Candidiasis
4. IgM
5. Classical complement pathway

   OR

   Mycetoma
6. Chickungunya – pathogenicity and lab diagnosis
7. Prophylaxis of rabies
8. Tissue culture for cultivation of viruses
9. Mechanism of innate immunity
10. Histoplasmosis – pathogenicity and lab diagnosis

    OR

    COVID 19 – pathogenicity and prevention
11. Precipitation reaction – mechanism and application
12. Herpes simplex virus – pathogenicity

SHORT ANSWER 10 x 3 = 30 Marks

13. Classification of fungus based on morphology
14. Super antigen
15. Draw a neat labelled diagram of HIV
16. Name three viruses which causes congenital infection
17. Rhinosporidiosis
18. Rotavirus
19. Interferon
20. Name three mycotoxins produced by fungus
21. Allograft
22. Antigenic drift in influenza virus

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (M.L.T) Degree Examination – 05-Jun-2024

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. Write in detail about blood bank organisation, procedures and quality control.
2. Discuss about characterization of human chromosomes by various banding techniques.
   OR
   Enumerate transfusion reactions and add a note on transfusion reaction.

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

3. Cytologic criteria of malignancy.
4. Cell Block preparation.
5. Indirect Coomb's test.
   OR
   Cytology of Endometrium.
6. Cytology of respiratory tract lesions.
7. Image analysis.
8. Inverted microscope.
9. Preservation of immortalized cell lines.
10. Cross matching techniques.
    OR
    Applications of Immuno cytochemistry.
11. Minor Blood group systems.
12. Autologous transfusion.

SHORT ANSWER 10 x 3 = 30 Marks

13. Name three fixatives used in cytology.
14. Principle of Papanicolaou stain.
15. Shorr stain.
16. Hormonal cytological indices.
17. Cytology of CSF.
18. Three advantages of fine needle aspiration cytology.
19. Uses of cryoprecipitate.
20. Principle of flow cytometry.
21. Sex chromatin.
22. Platelet concentrate.

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (MLT) Degree Examination - 22-Nov-2024

Time: Three Hours | Max. Marks: 80 Marks

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. Name any two sources for vitamin D. Describe its biochemical functions, absorption and deficiency manifestations.
2. What is the biological reference range for Iron? Explain the mechanism of its absorption and the disorders associated with its metabolism.
3. Explain in detail in the nutritional importance of carbohydrates, proteins and lipids.

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

4. Define Recommended Dietary Allowances (RDA) and write the factors affecting it.
5. Protein Energy malnutrition.
6. Explain the formation of Bilirubin and add a note on Jaundice.
7. Wald's Visual cycle.
8. Functions of Vitamin E and Vitamin K.
9. Ion Selective Electrodes (ISE).
10. Agarose Gel and Electrophoresis for separation of plasma protein.
11. **Explain the HMP shunt pathway.**

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

12. Composition of pancreatic juice.
13. Metabolic alkalosis.
14. Define accuracy, precision and Mean.
15. Ketogenesis.
16. Functions of cholesterol.
17. Acute phase proteins.
18. Translation.
19. Functions of Thyroid hormones.
20. Define BMR.
21. Define mutation and its types.
22. Define isoenzymes with one example.
23. External Quality Control (EQC).

Rajiv Gandhi University of Health Sciences, Karnataka

Third Year B.Sc. Medical Laboratory Technology Degree Examination – 22-Nov-2024

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. Give a detailed account of cholesterol metabolism
2. Describe the process of pH regulation in the body

   OR

   Explain the principle, instrumentation and applications of HPLC

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

3. Replication of DNA
4. Composition and formation of renal calculi
5. Laboratory design

   OR

   Liver marker enzymes
6. ELISA
7. Hyperlipoproteinemias
8. Pancreatic function tests
9. Biological reference intervals
10. Functions of plasma proteins

    OR

    Capillary electrophoresis
11. Catabolism of branched chain amino acids
12. Ion selective electrodes

SHORT ANSWER 10 x 3 = 30 Marks

13. Isoenzymes
14. Lipid profile
15. Important products formed form tyrosine
16. Normal level of thyroid hormones
17. Explain pre analytical variables
18. CRP
19. Phenyl Ketonuria
20. Preparation of calibration curve
21. Point of care testing
22. Name the pyrimidine nucleotides

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (MLT) Degree Examination - 25-Nov-2024

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 and classify immunity. Explain Acquired immunity in detail.
2. Classify the fungi based on morphology with examples. Explain the etiological agent, pathogenicity and laboratory diagnosis of Histoplasmosis.
3. Explain the morphology, pathogenicity and laboratory diagnosis of HIV-AIDS.

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

4. Viral cultivation
5. Herpes simplex virus
6. Dengue
7. Ig M
8. ELISA
9. Properties of Antigens
10. Aspergillosis
11. Anaphylaxis

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

12. Human leucocyte antigen
13. Biological vectors
14. T lymphocytes
15. Name any three viruses causing Diarrhea.
16. Prophylaxis of Polio
17. Viral inclusion bodies
18. Rhinosporidiosis
19. Mycotoxins
20. Hepatitis C virus
21. MMR
22. Define agglutination. Give two examples.
23. Germ tube test

*****

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (MLT) Degree Examination - 27-Nov-2024

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. Name the various cytological indices. Describe the procedure for Liquid based cytology.
2. Describe the procedure for immunohistochemistry staining and applications of the same.
3. Enumerate various transfusion reaction. Explain the transfusion reaction workup.

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

4. Sex chromatin identification procedure
5. Procedure for Karyotyping.
6. Carbon dioxide incubator.
7. **Blood donor selection**
8. Autologous transfusion.
9. Principles and procedure of MGG stain.
10. **ABO Blood group system**
11. Principle and procedure for Indirect Coomb's test.

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

12. List the indications for transfusion of Packed red cell.
13. **Name three anticoagulants used in blood bank.**
14. **G- Banding**
15. List various cytological indices of Female genital tract.
16. List three transfusion transmitted diseases.
17. Care of microscope.
18. Describe superficial cell.
19. What is Apheresis and list three uses.
20. Enumerate cytological fixatives.
21. **Sub groups of A and B**
22. Principle of Papanicolaou stain.
23. Uses of cryoprecipitate.

Rajiv Gandhi University of Health Sciences, Karnataka

III Year B.Sc. (M.L.T) Degree Examination – 25-Nov-2024

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 hypersensitivity reaction. Describe in detail about type I hypersensitivity reaction.
2. Classify Picorna viruses. Explain the pathogenicity and laboratory diagnosis poliomyelitis. Add a note on its prophylaxis.
   OR
   Enumerate the dimorphic fungi. Explain in detail about pathogenesis and laboratory diagnosis of Histoplasmosis.

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

3. Pathogenicity and laboratory diagnosis of Hepatitis B virus.
4. Pathogenicity and laboratory diagnosis of Cryptococcus Neoformanns.
5. General properties of virus.
   OR
   Morphology and laboratory diagnosis of Influenza virus.
6. Differences between active and passive immunity.
7. Write a note on antifungal agents.
8. Pathogenicity and laboratory diagnosis of Dengue infection.
9. Explain in detail about hybridoma technology. Add a note on its uses.
10. Slide culture technique.
    OR
    Mucor mycosis – pathogenicity and laboratory diagnosis.
11. Precipitation reaction mechanism and applications.
12. Cultivation of viruses.

SHORT ANSWER 10 x 3 = 30 Marks

13. Name any three viruses causing diarrhoea.
14. Name three RNA viruses.
15. Name three mycotoxins.
16. Name three opportunistic infections seen in AIDS patient.
17. Morphology of Rhinosporidium.
18. Name three arboviral infections.
19. Name three subcutaneous mycosis.
20. Name three paramyxoviruses.
21. Natural killer cells.
22. KOH preparation.

Rajiv Gandhi University of Health Sciences, Karnataka

Third Year B.Sc. Medical Laboratory Technology Degree Examination – 27-Nov-2024

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. Discuss about anatomy, histology and physiology of female genital tract
2. **Enumerate different blood group system. Add a note on ABO blood group and its grouping methods.**
   OR
   Describe in detail the procedure for FNAC. Add a note on spray fixative and limitations of FNAC

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

3. **Fresh Frozen Plasma**
4. Rapid pap stain
5. Write on hemolytic disease of newborn
   OR
   Explain the anatomy and physiology of salivary glands
6. Cross matching techniques
7. Transfusion reactions and workup
8. **Discuss indications of different blood components.**
9. Rh system
10. Write a note on preservation of immortalized cell line
    OR
    Cytology of effusions in malignant conditions
11. Carbon dioxide incubator
12. Write a note on laminar air flow equipment

SHORT ANSWER 10 x 3 = 30 Marks

13. Types of microscope
14. Mention Karyotypic and Phenotypic abnormalities of turners syndrome
15. Indication of whole blood transfusion
16. Composition of anticoagulants used in blood bank
17. Draw neat labelled diagram of normal Pap smear
18. G-banding
19. Principle of immunocytochemistry
20. Sub groups of A and B
21. Normal cell structure
22. Organization of blood bank