

B.Sc.(M.L.T.) [1st Year]

BF/2008/11

Basic Principles of Biochemistry

M.M. : 100

Time : 3 Hours

Note : Attempt any 10/TEN/ questions.

- 1a. Enumerate various glassware to measure volume of reagents. [5]
 - 1b. Enumerate the types of weighing machines. [5]
 2. Define pH. What is normal physiological pH. Discuss various methods of measuring pH. [10]
 3. **Write short notes on:** [10]
 - a. Diffusion.
 - b. Surface tension.
 4. What are Radioisotopes. What are their uses in biochemistry lab. [10]
 5. Discuss the responsibilities of laboratory technician towards patient care and prevention of laboratory related accidents. [10]
 6. What is Plasma. Discuss various anticoagulants used in biochemistry lab. [10]
 7. Discuss various types of biological waste generated in biochemistry lab and how it is disposed. [10]
 8. Write the principle, procedure and interpretation of Benedict's qualitative test in urine sample. [10]
 9. What is Molar solution. Describe the steps of preparing 500 ml of 2M NaOH. [10]
 10. Describe the tests for proteins in Urine. Mention various causes of proteinuria. [10]
 11. Describe all the steps of blood sample collection. [10]
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B.Sc.(M.L.T.) [1st Year]

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General Microbiology

M.M. : 100

Time : 3 Hours

Note : Attempt all questions.

1. Define antigen - antibody reactions. Name various types and describe the principles of agglutination reactions giving suitable examples. [15]

 2. **Enumerate the differences between:**
 - a. Chemotherapeutic agents and antibiotics. [5]
 - b. Moist heat sterilization and Dry heat sterilization. [5]
 - c. Gram positive cell wall and Gram negative cell wall. [5]

 3. Describe the care and maintenance of lab equipment. [10]

 4. **Describe briefly:**
 - a. Chocolate agar. [5]
 - b. Gaseous disinfectants. [5]
 - c. Bacterial flagella. [5]

 5. **Write short notes on:**
 - a. Gram stain. [5]
 - b. Contributions of Louis Pasteur. [5]
 - c. Gnotobiotic animals. [5]

 6. **Discuss in brief the following:**
 - a. Role of quality control in microbiology. [10]
 - b. Collection of blood for blood culture and its processing. [10]
 - c. Anaerobic culture methods. [10]
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B.Sc.(M.L.T.) [1st Year]

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Fundamentals of Applied Histopathology/Histology

M.M. : 100

Time : 3 Hours

Note : Attempt all questions.

1. Define processing of tissues. Write in brief the steps involved in processing? [20]
 2. **Write notes on:**
 - a. Draw a labeled diagram of a cell and describe the functions of its various structures. [10]
 - b. Draw a labeled diagram of Osteon and enumerate difference of compact and lamellar bone. [10]
 3. **Write short notes on:**
 - a. Plasma proteins. [6]
 - b. Counter current mechanism in the kidney. [6]
 - c. Structure and function of WBC. [6]
 4. **Write short notes on:**
 - a. Ventricles of the brain. [6]
 - b. Stages in Oogenesis. [6]
 5. **Write short notes on:**
 - a. Method of embedding tissue in Paraffin wax. [6]
 - b. Types of Microtomes - their working principle and maintenance. [6]
 - c. Special stains in histopathology for microorganisms and procedure for AFB staining. [6]
 6. **Write notes on:**
 - a. PAP Stain. [6]
 - b. How will you prepare and interpret a PAP smear. [6]
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B.Sc.(M.L.T.) [1st Year]

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Basic Techniques in Laboratory Haematology

M.M. : 100

Time : 3 Hours

*Note : Attempt **EIGHT** questions in all.*

FOUR questions from **PART-A** and **FOUR** questions from **PART-B**

PART-A

1. Describe briefly about Differential Leucocyte Count [DLC]. Draw labeled diagrams of each cell type. [15]
2. Describe various methods of ESR measurement. [15]
3. Describe the mode of action, advantages and disadvantages of various anticoagulants used in Hematology. [15]
4. What is Quality assurance? How will you calibrate a Colorimeter for Hb estimation. [15]
5. Write briefly about C.S.F. examination. [15]

PART-B

6. Describe briefly about physiological variations in Hb and TLC values. [10]
 7. Write the procedure for total WBC count. [10]
 8. Describe staining procedure for peripheral blood smears and bone marrow smears. [10]
 9. What are Ketone bodies. Write briefly the method for detection of ketone bodies. [10]
 10. Describe the method for performing reticulocyte count. [10]
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B.Sc.(M.L.T.) [2nd Year]

BF/2008/11

Fundamentals of Haemtology

M.M. : 100

Time : 3 Hours

Note: *Attempt all questions.*

1. Describe the normal cells found in the bone marrow. [10]
 2. Indirect Coomb's test. [10]
 3. Collection, processing and precautions for platelet transfusions. [10]
 4. Methods of fetal hemoglobin estimation. [10]
 5. Investigations in a patient with iron deficiency anemia. [10]
 6. Selection of a blood donor. [10]
 7. a. Eosinophilia. [5]
b. Disadvantages of manual hemoglobin estimation. [5]
 8. a. Factor IX. [5]
b. Manual platelet count. [5]
 9. a. Fetal hemoglobin. [5]
b. Quantitation of urine hemoglobin. [5]
 10. a. Bone marrow aspiration. [5]
b. Fibrinogen. [5]
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B.Sc.(M.L.T.) [2nd Year]

BF/2008/11

**Systemic Microbiology including
Virology & Parasitology**

M.M. : 100

Time : 3 Hours

Note: *Attempt all questions.*

1. **Describe in brief the following:**
 - a. Concentration techniques of Stool sample. [5]
 - b. Casoni's test & its interpretation. [5]
 - c. Differences between Plasmodium Vivax and Plasmodium Falciparum. [5]
 2. Describe life cycle of Echinococcus Granulosus. [10]
 3. Discuss in brief the laboratory diagnosis of Typhoid fever. [15]
 4. **Discuss in brief the following:**
 - a. Toxins & Enzymes of Staphylococci. [10]
 - b. Pathogenesis of Clostridium Tetani. [10]
 - c. Differences between Streptococcus viridans & Pneumococci. [10]
 5. **Describe briefly the following:** [3x5=15]
 - a. Transportation and storage of samples for viral diagnosis.
 - b. Staining techniques for demonstration of viral inclusion bodies.
 - c. Principle and application of Elisa technique for HBsAg detection.
 6. Discuss in brief the complications of Plasmodium falciparum infection and its diagnosis. [15]
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B.Sc.(M.L.T.) [2nd Year]

BF/2008/11

Analytical Biochemistry & Metabolism

M.M. : 100

Time : 3 Hours

Note: Attempt all questions.

1. Discuss Digestion and absorption of Lipids. [15]
 2. Describe principle and applications of different types of Chromatography. [15]
 3. **Write short notes on:**
 - a. Essential fatty acids. [5]
 - b. Fructose intolerance. [5]
 - c. Gout [5]
 4.
 - a. Discuss effect of temperature, pH, enzyme and substrate concentration on enzyme activity. [10]
 - b. Diagnostic uses of Isoenzymes. [10]
 5.
 - a. Give an account of Calorific value of food. [10]
 - b. Describe Marasmus. [10]
 6.
 - a. Discuss Glycogen storage disease. [10]
 - b. Maple syrup disease. [5]
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B.Sc.(M.L.T.) [2nd Year]

BF/2008/11

Basic Cellular pathology & allied techniques

M.M. : 100

Time : 3 Hours

Note : Attempt all questions.

Draw diagrams wherever necessary.

1. Discuss briefly the organs of alimentary system. Write their role in digestion of food. [10]
 2. Write briefly on types of cartilage and their functions. [10]
 3. Define Metachromasia. Enumerate metachromatic stains and discuss the procedure of one such method. [10]
 4. Describe in detail the collection and processing of Sputum specimen. [10]
 5. **Write briefly on:**
 - a. Reticular fibres and its staining. [5]
 - b. P.A.S. stain. [5]
 6. **Comment on:**
 - a. Transitional epithelium. [5]
 - b. Prostate gland. [5]
 7. **Write short notes on:**
 - a. Structure of blood vessel. [5]
 - b. Structure of neuron. [5]
 8. **Discuss briefly:**
 - a. Islets of Langerhans. [5]
 - b. Fallopian tube. [5]
 9. **Write short notes on:**
 - a. Micrometry. [5]
 - b. Phase contrast microscope. [5]
 10. **Comment on:**
 - a. Types of haematoxylin. [5]
 - b. Importance of cytologic screening. [5]
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B.Sc.(M.L.T.) [3rd Year]

BF/2008/11

Applied Haemtology

M.M. : 100

Time : 3 Hours

Note: Attempt any 10(TEN) questions.

1. Classify hemolytic anemias. How will you differentiate between intravascular and extravascular hemolysis. [10]
 2. Classify acute Leukemias. [10]
 3. What tests can be done for assessing platelet functions. Describe any one in detail. [10]
 4. Describe the method for doing Karyotyping in the laboratory. [10]
 5. What are cytochemical stains? What is their use? Describe any two in detail. [10]
 6. Describe the Schilling test. [10]
 7. Describe laboratory tests done for testing Fibrinolysis. [10]
 8. Enumerate the Radioisotopes of use in hematology with their uses & half lives. [10]
 9. How will you establish the diagnosis of DIC in the lab. [10]
 10. How will you assess the body iron stores. [10]
 11. What is corrected reticulocyte count. Write the procedure and significance of reticulocyte count. [10]
 12. What are haemoglobinopathies and how are they diagnosed in the laboratory. [10]
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