

FIRST YEAR BSc MLT

BASIC MEDICAL LABORATORY SCIENCE AND HEMATOLOGY - I

MICROSCOPE

ESSAY QUESTIONS

1. Classify microscope. Describe the principle of working of a compound microscope and explain the function of the various components of this microscope.
 - Definition and classification of microscope
 - Principle, working, function & components of a compound microscope
 - Diagram
2. Describe the principle, parts and working of fluorescent microscope
 - Definition and types of microscope
 - Description of principle, working and parts of fluorescent microscope with diagram
 - Applications
3. Describe the optical parts and principle of image formation of a light microscope
 - Introduction
 - Describe optical parts of microscope (source of illumination, condenser, objective, eyepiece)
 - Principle of image formation in light microscope with diagram
4. Describe the principle of image formation in a microscope. Define numerical aperture, resolution and magnification. What steps will you take in daily care of a microscope?
 - Introduction & principle of image formation in a microscope with diagram
 - Define numerical aperture, resolution and magnification - (with diagram)
 - Daily Care of a microscope
5. Describe in detail the different types of microscope and their specific uses.
 - Definition and types of microscope
 - Specific uses and function of bright field, dark field phase contrast, fluorescence, electron microscope (SEM and TEM)
6. List the different types of microscope. Describe the main parts of a bright field microscope. Briefly discuss the routine care and maintenance of a microscope.
 - Definition of microscope

- Types with a brief description of bright field microscope
 - Explanations of use and care
7. Mention different types of microscope. Describe the principle, working and application of fluorescent microscope **
- Definition and types of microscope
 - Description of principle, working and parts of fluorescent microscope with diagram
 - Applications
8. Name different types of microscope and explain the principle, working, and different parts of compound microscope
- General introduction of a microscope
 - Classification and principle of working
 - Parts of microscope, functions of each part
 - Care of microscope
9. Substantiate the importance and development of light microscope. Explain the numerical aperture, image formation, resolution and magnification of light microscope
- General introduction importance
 - Development and Principle of working
 - Explain numerical aperture - diagram
 - Image formation - diagram
 - Resolution and magnification of light microscopy - with diagram
10. Name the different types of microscopes and explain in detail about bright field microscope
- General introduction and list the different types of microscopes
 - Principle of working (Diagram)
 - Parts of microscope and functions of each part
 - Care and maintenance
11. List the different types of microscope. Describe the principle, methods of working, parts and uses of Electron microscope
- General introduction and name different types of microscope
 - Describe (with diagram) in detail about the SEM and TEM with its principle, methods, parts and uses.

12. Substantiate history and development of microscopes. Briefly explain the different types of objectives, eye piece, condensers , illumination and applications of bright field microscopy.
 - General introduction with the inventor Antonyvan leeuwenhock.
 - History and development first simple microscope
 - Types of objective with power, eyepiece, condensers and illumination
 - Applications

13. What is microscopy. Describe the methods of use of microscope for the demonstration of wet films and dry preparations.
 - Definition of microscopy
 - List out the types
 - Demonstration of wet and dry preparations by using microscope

14. Substantiate the importance and development of microscope. explain in detail about phase contrast microscope.
 - General introduction with the history and development
 - Explanation of phase contrast microscope in detail

15. List the different types of microscope. Describe the Principle, Working and parts of polarizing microscope.
 - General introduction with the types of microscope
 - Explanation of principle, working and parts of polarizing microscope

16. Enumerate the different types of microscope. Explain in detail about dark field microscope.
 - General introduction with different types of microscope
 - Principle, working and parts of dark field microscope

17. What is micrometry? Explain the principles, methodology and uses of different types of micrometry
 - Definition of micrometry
 - Explanations of principles, methodology and uses of following micrometry
 - Light microscopic micrometry . Photographic micrometry

18. Enumerate the different types of micrometry. Write in detail about light microscopic micrometry
 - Definition and Different types of micrometry
 - Light microscopic micrometry principle and use
19. What is micrometry? Name the different types and explain about Photographic micrometry
 - Definition of micrometry
 - Different types
 - Photographic micrometry principle and uses with diagram
20. List the different types of micrometry. Write the uses and applications of electron microscopic micrometers.
 - Definition and different types of micrometry
 - Electron microscopic micrometer –uses and applications

SHORT NOTES

1. Micrometry**
 - Definition of micrometry
 - Different types of micrometry
 - Applications
2. Dark ground microscope*
 - Classification of microscope
 - Principal, parts, working of dark field microscope
3. Electron microscope*
 - Types-scanning electron microscope and transmission electron microscope
 - Principle, parts, working and applications of both
4. Principle of transmission electron microscope
 - Introduction, labeled diagram and function of each part
5. Phase contrast microscope***
 - Different microscopes
 - Principal, parts and safe working of phase contrast microscope
 - Use and care

6. Resolution of microscope
 - Definition, diagram, resolving power of each type of microscope
7. Types of eyepieces
 - Write 3 types of eyepieces and its uses
 - Neat labeled diagram of each eyepieces
8. Describe magnification and resolution of microscope
 - Definition, diagram, resolving power of each type of microscope
 - Definition of magnification, diagram, equation, total magnification
9. Fluorescent microscope*
 - Different types of microscope
 - Principle, parts, safe working of fluorescent microscope
10. Principle and working of light microscope
 - Principle with neat diagram (primary and secondary image formation)
 - mention the parts of microscope and their use
11. Classification of microscope
 - Definition of microscope
 - Classification of microscope with brief description of each
12. Care of microscope
 - Definition of microscope
 - Care and function of microscope
13. Main parts of light microscope
 - Definition of light microscope
 - Function and uses of parts of light microscope
14. Scanning electron microscope
 - Definition of electron microscope with inventor
 - Types and description of principle, working and applications of SEM
 - Diagram
15. Transmission electron microscope

- Types of electron microscope
- Principle, parts, safe working and applications of TEM with diagram

16. Polarising microscope

- Different types of microscopes
- Principle, parts, safe working and applications of polarizing microscope

ANSWER BRIEFLY

1. Principle and use of phase contrast microscope
2. Microscope objectives
3. Care of microscope
4. Micrometry ***
5. Resolution of a microscope
6. Parts of electron microscope
7. Oil immersion objectives
8. Abbe condenser
9. Eyepiece
10. Condenser
11. Iris diaphragm
12. Aberrations of lens system
13. Numerical aperture
14. Total Magnification of microscope
15. Focal length
16. Dyes used for fluorescent microscope
17. Specimen preparation methods for electron microscope

18. Contrast enhancement techniques for electron microscope
19. Applications of dark field and phase contrast microscope
20. Source of illumination in microscope
21. Mechanical parts of microscope

HEMOGLOBIN

ESSAY QUESTIONS

1. Define haematopoiesis. Explain the formation, maturation and development of lymphocytes. And add a note on the abnormalities of leukocytes
 - Definition of haematopoiesis
 - Definition of lymphopoiesis with neat labeled diagram
 - Abnormalities of leukocytes with description
2. Describe haematopoiesis. Explain the functions and fate of blood cells with a neat labeled diagram
 - Definition of haematopoiesis
 - Explanation of haematopoiesis with the help of a flow chart
 - Diagrams of mature blood cells
3. Describe Haematopoiesis. Enumerate the different stages of erythropoiesis
 - Definition
 - Origin
 - Stages
4. What are the different methods of hemoglobin estimation? Mention the advantages and disadvantages of two commonly used methods.
 - Introduction of hemoglobin estimation
 - Types of methods
 - Advantages and disadvantages of the methods
5. Define anemia. Discuss the different methods of estimation of hemoglobin. *
 - Define anemia

- Types and method of hemoglobin estimation
6. Hemoglobin estimation method used in blood bank
 - Introduction of hemoglobin estimation
 - Types , method, uses and clinical importances of hemoglobin estimation in blood bank
 7. Describe the different methods for hemoglobin estimation, its advantages and disadvantages. Mention the normal values and the condition in which you get abnormal values for hemoglobin.
 - Introduction of hemoglobin estimation
 - Advantages and disadvantages of each method
 - Mention normal values, abnormal condition and abnormal value of hemoglobin.
 8. Mention the method of Hb estimation. describe cyanmethemoglobin method in detail
 - Introduction & method of Hb estimation
 - Describe principle, method, clinical significances and interpretation of cyanmethemoglobin
 9. Write in detail about the methods of identification of abnormal haemoglobin. Briefly explain sickling phenomenon.
 - General introduction to hemoglobin
 - Abnormal haemoglobins and its demonstration
 - Sickling test

SHORT NOTES

1. Function of RBC
 - Introduction
 - Shape , size and structure of RBC
 - Function of RBC
2. Method of hemoglobin estimation *
 - Introduction
 - Types , method & principle of Hb estimation
3. Detection of abnormal hemoglobin*

- Introduction
 - Types , method & principle of Hb estimation
 - Abnormal condition of Hb
4. Erythropoiesis
- Definition of haematopoiesis
 - Definition of erythropoiesis and sites different stages of development with necessary diagrams
5. Hemoglobin estimation by cyanmethemoglobin method*
- Introduction
 - Principle and procedure and interpretation
 - Clinical significances
6. Abnormal hemoglobin
- Introduction
 - Types, method & principle of Hb estimation
 - Abnormal condition of Hb
7. Sahli's hemoglobinometry
- Introduction and definition
 - Principle , procedure and clinical importances of sahli's method
8. Test for Hb S
- Definition
 - Describe Hb S estimation
9. Acid hematin method for the estimation of Hb
- Definition , method and clinical importances of acid hematin method
10. Osmotic fragility test *****
- Definition and principle of test
 - Procedure, observation and calculation with graphical representation
 - Normal values and clinical significance

ANSWER BRIEFLY

1. Fetal hemoglobin
2. Fate of RBC, s
3. Abnormal hemoglobin
4. Hb F demonstration in RBCs
5. Sahli's hemoglobinometer
6. What is cyan meth hemoglobin method*
7. Fate of red blood cell in normal human being
8. Sickling test****
9. Sicking phenomenon
10. Kleihaur's test
11. Acid elution test*

BLOOD COLLECTION & ANTICOAGULANTS

ESSAY QUESTIONS

1. Enumerate anticoagulants. Discuss their function , uses, advantages and disadvantages.
 - Definition of anticoagulants
 - Classification , functions and uses of each
 - Advantages and disadvantages
2. Explain the function, advantages and disadvantages of EDTA and double oxalates
 - General introduction
 - Function , uses, advantages and disadvantages of EDTA & double oxalates
3. Describe in detail the different anticoagulants and their uses in hematology.
 - Different anticoagulants with its classification
 - Actions and uses

4. Explain the functions, uses, advantages and disadvantages of versene. Add a note on natural anticoagulants
 - Define anticoagulants
 - Functions, uses advantages and disadvantages of EDTA
 - Brief explanation about heparin and hirudin

5. List the different anticoagulant solutions used in hematology laboratory. briefly explain about heparin. Add a note on special purpose anticoagulants
 - General introduction of anticoagulants
 - Classification and explanation about natural anticoagulants (heparin, hirudin)
 - Blood bank anticoagulants (ACD, CPD, CPDA. .)

6. Name different anticoagulants used in haematology. Explain in detail about trisodium citrate and oxalates. Add a note on the preparation of anticoagulant bottles.
 - General Introduction
 - Trisodium citrate and oxalates with their uses and actions
 - Method of preparation of anticoagulant bottles

7. What are anticoagulants? Discuss their function and uses.
 - General introduction
 - Function & uses of each anticoagulant.

8. Describe phlebotomy. Briefly explain the various anticoagulants used in hematology
 - Description of phlebotomy procedure with a note of phlebotomy tray
 - Explanation of various anticoagulants with their actions and uses

SHORT NOTES

1. Capillary blood collection
 - Definition & introduction about blood collection
 - Capillary blood collection and its clinical significances

2. EDTA*
 - Definition of anticoagulants and classification
 - EDTA-composition , concentration, actions, preparation, and uses

3. Blood collection methods*

- Definition
 - Sites & method of blood collection
 - Different Anticoagulants and its uses.
4. Anticoagulants - Definition, classification, uses, advantages and disadvantages of each.**
 5. Vacutainers **
 - Introduction
 - Types of anticoagulants and its vacutainers
 - Clinical uses, advantages & disadvantages of each vacutainers
 6. Anticoagulants in hematology. *
 - Definition
 - Classification
 - Action and uses of each
 7. Venepuncture
 - Definition , indication , commonly used veins
 - General indication
 - Procedure & complications
 8. Natural anticoagulant
 - Definition of anticoagulant
 - Classification , examples of natural anticoagulants
 - Heparin and hirudin- actions and uses
 9. Versene
 - Definition of anticoagulants and classification
 - EDTA-composition , concentration, actions, preparation, and uses

ANSWER BRIEFLY

1. Enumerate anticoagulants with mode of action
2. Capillary blood collection*

3. Uses of anticoagulants
4. Vacutainers and their color coding.
5. EDTA
6. Sodium citrate solution
7. Heparin
8. Preparation of anticoagulated bottle
9. Double oxalate
10. Vacutainer tubes
11. Citrate based anticoagulants
12. Lancet
13. Types of injection needles and its uses

SMEAR PREPARATION

ESSAY QUESTIONS

1. What is a Romanowsky stain? Discuss the preparation, staining property and artifacts of leishman's stain.
 - Classification of Romanowsky stains
 - Leishman's staining
 - Principle, preparation and staining properties of each staining
2. List out the Romanowsky stains. Discuss the preparation and use of buffer solutions in staining
 - General introduction to staining
 - Classification of Romanowsky stains
 - Preparation and uses of buffer solutions
3. What is the principle of Romanowsky staining? Briefly describe the components, methods of preparation and procedure of leishman staining.

- Principle of Romanowsky staining
 - Leishman's staining
4. What are the general principles of staining? Which are the Romanowsky stains. Describe the preparation and staining properties of leishman's stain.
 - Introduction and principle of staining
 - Types of Romanowsky stains
 - Leishman's staining.
 5. Describe the preparation and staining of thin, thick, wet peripheral smears and buffy coat smear. Explain the advantages of each one.
 - Introduction of peripheral smear
 - Describe the preparation, staining and advantages of thin, thick, wet and buffy coat smear.
 6. Discuss the preparation of blood smears. Add a note on leishman's staining
 - General introduction to ideal blood smear
 - Preparation of thick and thin smear and uses
 - Buffy coat preparation
 - Leishman's staining
 7. Describe the thin and thick smear preparation. Briefly explain the methods and uses of wet film and buffy coat preparations
 - General introduction to thick and thin smear
 - Preparation and uses of both with diagram
 - Methods and uses of wet film and buffy coat
 8. Detection of malaria
 - Introduction of peripheral smear
 - Types of blood smear
 - Staining and its examination of parasites.

SHORT NOTES

1. Steps of leishman staining**
 - General introduction of Romanowsky stain

- Principle and procedure of leishman stain
- 2. Preparation of thick smear****
 - General introduction of peripheral smear
 - Types of smears
 - Preparation of thick smear with neat diagram
- 3. Thin blood smear*
 - General introduction of peripheral smear
 - Preparation and significances of thin smear
 - Draw neat diagram
- 4. Romanowsky stains
 - General introduction of Romanowsky stain
 - Types of Romanowsky stains
 - Significances and uses of Romanowsky stains
- 5. Preparation and use of buffy coat smear
 - Definition of buffy coat
 - Buffy coat preparation
 - Characteristics and clinical significance
- 6. Criteria of an ideal peripheral smear
 - Introduction of peripheral smear
 - Preparation and characteristics of blood smear
 - Draw neat labeled diagram of peripheral smear
- 7. Preparation of different types of smear with peripheral blood
 - Introduction of peripheral smear
 - Preparation of different type smears
 - Draw neat labeled diagram of each smear
- 8. Abnormal cells in peripheral smear
 - Introduction of normal cells peripheral smear
 - Types of abnormal cells and its clinical conditions

ANSWER BRIEFLY

1. Buffy coat preparation**
2. Abnormal cells in peripheral blood
3. Leishman stain
4. Thick smear preparation**
5. Giemsa stain*
6. Wet film preparation*
7. How do you prepare a spreader slide
8. Steps of Giemsa staining
9. Buffer in leishman stain
10. Explain the term buffy coat with the help of a diagram
11. MGG stain

LEUKOCYTE COUNT

ESSAY QUESTIONS

1. Enumerate in detail, how the total leucocytes count is done. Mention the reasons for false low and high leukocytes counts.
 - Introduction and procedure of TLC
 - Normal values of each leukocytes
 - Reasons for false low and high leukocytes counts
2. Describe the procedure of total WBC count (with corrected nucleated RBC) by conventional and bulk dilution methods. How is the diluting solution prepared? What are the common errors in total WBC count and mention quality control measures to avoid them.
 - Introduction and procedure of total WBC count

- Bulk dilution methods
 - Preparation of diluting solution
 - Quality control and common errors of total WBC count.
3. How will you differentiate mature leukocytes in a blood smear? Describe the procedure of differential WBC count.
- Write about Granulocytes and agranulocytes
 - Classification and morphology of each WBC
 - Procedure of DLC
4. What are the different types of blood smear preparations? Briefly discuss how differential leucocyte count is performed.
- Types and preparation of each blood smear
 - Principle , procedure and interpretation of DLC
5. Discuss the different methods of Total leukocyte count with correction of NRBC. Add a note on the errors in sampling, mixing, diluting and counting.
- Introduction of blood cell count with total leukocyte count
 - Correction with NRBC and clinical significance
 - Different technical errors encountered during each steps of TLC
6. Discuss the micropipette and bulk dilution technique in absolute eosinophil count with its advantages and disadvantages.
- Methods of AEC
 - Description of bulk dilution and micropipette method
 - Advantages and disadvantages of each methods
7. Explain detail on
- a. Anisocytosis
 - b. Poikilocytosis
 - c. Red cell inclusions
- Definition
 - Explain Anisocytosis, Poikilocytosis and red cell inclusions with a neat labeled diagram Clinical significance

SHORT NOTES

1. Differential leucocyte count
 - Ideal blood smear and staining
 - Differential leukocyte count
 - Normal percentage of each with clinical significance
2. Bulk dilution technique**
 - Principle of bulk dilution
 - Turk's fluid and its composition
 - Method of dilution

ANSWER BRIEFLY

1. Granulocytes
2. Turk's fluid**
3. WBC diluting fluid and methods of dilution
4. Diluting fluids

BONE MARROW

ESSAY QUESTIONS

1. Discuss the collection of bone marrow. Briefly explain the preparation of bone marrow smears and its differential count
 - Bone marrow brief description
 - Collection of bone marrow(sites, needles)
 - Preparation of bone marrow smears and DC
2. Explain the morphologic study of marrow films and its differential count. Add a note on indications of bone marrow aspiration
 - General introduction to bone marrow collection and smear preparation
 - Morphological study with differential count
 - Bone marrow aspiration with indications

SHORT NOTES

1. Bone marrow smear preparation and staining*
 - General introduction of bone marrow
 - Preparation and staging methods of bone marrow
2. Bone marrow examination
 - General introduction and types of bone marrow
 - Collection and preparation of bone marrow
 - Microscopic examination of bone marrow
3. Indications for bone marrow study
 - Minimum five indications regarding bone marrow aspiration
4. Erythroid cell in the bone marrow
 - Bone marrow aspirate
 - Cells in bone marrow
 - Erythroid series

ANSWER BRIEFLY

1. Staining of bone marrow smear
2. Stages of myelopoiesis in the marrow
3. Indication of bone marrow
4. Types of bone marrow
5. Salah needle & its uses
6. Technique of bone marrow

RETICULOCYTES

ESSAY QUESTIONS

1. What is supravital? Give two examples. Describe the steps in the preparation of reticulocyte stain and discuss the methods of counting reticulocytes.
 - Definition and principle of supra vital stain
 - Steps in preparation of reticulocyte count
 - Calculation and method of counting

2. Describe the composition and preparation of different supravital stains. Add a note on reticulocyte count
 - Definition of supravital staining
 - Different supravital stains, its composition and preparations

3. Explain demonstration and counting of reticulocytes. Briefly explain the composition and preparation of various supravital stains.
 - Reticulocyte –characteristics with diagram
 - Demonstration and counting
 - Different supravital stains with its composition and preparation

4. Discuss the principles and uses of supravital staining techniques. Add a note on miller eyepiece method.
 - Definition of supravital staining
 - Principle and uses of supravital staining techniques
 - Miller eyepiece method of reticulocyte count
 - Reticulocyte count with normal values

SHORT NOTES

1. Reticulocyte counting and clinical utility of newer automated reticulocyte parameters
 - What is reticulocyte count and its principle
 - Write about automated reticulocyte count

2. Reticulocyte count*****
 - Introduction of reticulocyte count and supra vital stain
 - Preparation and calculation of reticulocyte count
 - Normal values and neat diagram of reticulocyte

3. Supra vital stain*****

- Introduction and principle of supra vital stain
 - Types , composition and preparation of stain
 - Smear preparation
4. Brilliant cresyl blue and its use
- Introduction and types of supravital stain
 - Composition , preparation and uses of brilliant cresyl blue

ANSWER BRIEFLY

1. Preparation of brilliant cresyl blue stain
2. Reticulocyte count**
3. Brilliant cresyl blue

PACKED CELL VOLUME

ESSAY QUESTIONS

1. Describe the method for the estimation of packed cell volume
 - Principle and method of examination in PCV
 - Clinical Importance

SHORT NOTES

1. Packed cell volume(Hematocrit)*****
 - Definition
 - Different methods brief explanation of any one of the method
 - Normal values and clinical significance

ANSWER BRIEFLY

1. PCV**
2. What are the three layers in a PCV tube
3. Increased PCV

ERYTHROCYTES SEDIMENTATION RATE

ESSAY QUESTIONS

1. What is meant by ESR? describe the methods for estimation of ESR. mention the normal values and the clinical significance of ESR estimation.
 - ESR; definition
 - Different Methods of ESR including automated methods
 - Normal values and clinical significance of ESR
2. Name the different methods of ESR estimation. discuss the technique, advantages and disadvantages of each method
 - Introduction
 - Different Methods of ESR including automated methods
 - Normal values and clinical significance of ESR
 - Advantages and disadvantages of each methods

SHORT NOTES

1. Cleaning of a wintrobe's tube
 - Definition of ESR
 - Different methods
 - Cleaning method of wintrobe's tube
2. Stages of sedimentation in ESR
 - Definition of ESR
 - Different Stages ESR with time schedule
 - Factors affecting sedimentation red cell and plasma factors
3. Factors affecting ESR estimation**
 - Definition of ESR
 - Stages and different methods
 - Factors – red cell factors and plasma factors descriptions of each
4. ESR***

- Definition and principle
 - Stages and different methods and explain detail about anyone method
 - Factors affecting and clinical significance
5. Methods of ESR estimation ***
- Definition and principle
 - Stages and different methods and explain detail about anyone method
 - Factors affecting and clinical significance

ANSWER BRIEFLY

1. Westergren's method for ESR estimation
2. Wintrobe's method for ESR
3. Stages of sedimentation of erythrocytes
4. Factors affecting ESR

RED CELL INDICES

ESSAY QUESTIONS

1. What are red cell indices. Explain the methods of determination of red cell indices with its clinical significance.
 - Different red cell indices
 - Methods of determination of red cell indices
 - Clinical significance

SHORT NOTES

1. Red cell indices***
 - Red cell indices- definition,
 - Formula and normal values of MCV, MCH, MCHC
 - Clinical significance
2. Methods of determination of red cell indices
 - Different Red cell indices

- Methods of determination of MCV, MCH, MCHC etc
3. Brief description of MCV, MCH, MCHC and color indices
 - Red cell indices- definition,
 - Formula and normal values of MCV, MCH, MCHC
 - Color indices

ANSWER BRIEFLY

1. MCV**
2. Red cell indices
3. MCHC
4. MCH
5. Red cell indices and their utility in anemia classification.

MEDICAL LAW & ETHICS

ESSAY QUESTIONS

1. Define medical ethics. What is Code of ethics? Add a note on the duties mentioned in the code of ethics.
 - Definition of medical ethics
 - Code of ethics
 - Various code of ethics
 - Explain about the duties imparted in the code of ethics
 - Duties to the society
 - Duties to the patient
 - Duties to coworkers
2. Describe organ transplantation. Describe various types of donors. What are the ethical issues in transplantation?
 - Definition of organ transplantation
 - Different types of donors

- Live donors
- Cadaver donors
- Brain death
- Ethical issues in transplantation

SHORT NOTES

1. Code of ethics for a laboratory technician
2. Record keeping in medical laboratory
3. Medical ethics
 - Definition
 - Introduction
 - Code of medical ethics
4. Duties mentioned in the code of ethics
 - Derivation of code of ethics
 - Various duties
5. Principles of medical ethics
 - Introduction
 - Principles
 - Confidentiality
6. Malpractice and Negligence
 - Definition
 - Causes
 - Basic elements
7. Brain death
 - Definition
 - Guidelines for diagnosis of brain death
8. Types of donors
 - Classification
 - Live donors

- Cadaver donation
- 9. Organ transplantation
 - Definition
 - Types of donors
 - Brain death
- 10. Euthanasia
 - Definition
 - Types of euthanasia
 - Description of suicide
- 11. Informed consent and autonomy
 - Informed consent
 - Autonomy
- 12. Confidentiality
 - Definition
 - Importance
- 13. Protocol to avoid near miss or sentinel events
 - Definition of patient safety
 - Different Medical errors(health care near miss and sentinel errors)
 - WHO practice of patient safety

ANSWER BRIEFLY

1. Care of laboratory equipments
2. Standard operative procedure
3. Release of medical information
4. Organ transplantation
5. Medicolegal cases
6. Medicolegal aspects of medical records

7. Medical errors
8. Medical records
9. Confidentiality
10. Euthanasia
11. Medical negligence
12. Live donors
13. Cadaver donors
14. Brain death
15. Ethical issues in transplantation
16. Code of conduct
17. Autonomy and informed consent
18. Code of medical ethics
19. Duties imparted in the code
20. Pledge to the profession
21. Principles of medical ethics
22. Importance of confidentiality
23. Malpractice and negligence
24. Medical malpractice

BASICS OF MEDICAL LABORATORY

ESSAY QUESTIONS

1. Discuss in detail the role of the laboratory in the health care system in our state.
 - General introduction of laboratory
 - General Role of laboratory
 - Write about health care system in our state
2. List the types of laboratory accidents. Describe the precautions to prevent chemical hazards. How do you manage chemical hazards?
 - Introduction
 - List the laboratory accidents & chemical hazards
 - Management & precautions to prevent chemical hazards.
3. Explain the general principle in lab safety. Mention the different lab hazards and describe the role of universal safety precautions in preventing these hazards.
 - Introduction & General principle of lab safety
 - List the laboratory accidents & chemical hazards
 - Management & precautions to prevent chemical hazards.
4. Explain the composition of glassware. Briefly describe glass blowing techniques.
 - Definition & introduction
 - Describe glass blowing techniques.
5. What is laboratory safety? Discuss the various laboratory hazards and safety measures to prevent them.
 - Introduction & General principle of lab safety
 - List the laboratory accidents & chemical hazards
 - Management & precautions to prevent chemical hazards.
6. List the common laboratory glasswares. describe briefly the method for cleaning of glassware in the laboratory.
 - Introduction & list the common laboratory
 - Method and cleaning of glassware in the laboratory

SHORT NOTES

1. First aid in the laboratory*
 - Introduction
 - Lab related emergency and its first aids
2. Universal safety precautions**
 - Introduction to laboratory safety
 - Different hazards and universal safety precautions
3. Cleaning of pipettes
 - Introduction
 - Preparation of cleaning solution
 - Cleaning of pipettes
4. Biomedical waste management *****
 - Different types of wastes in laboratory
 - Biomedical waste disposal
 - Different protocols regarding waste management
5. Prevention and management of biological hazards in a laboratory.
 - Different biological hazards in laboratory with labels
 - Prevention method for management
6. Storage and safe use of corrosive chemicals
 - General introduction of safe handling of chemicals
 - Storage and use of corrosive chemicals
7. Cleaning of glass slides for blood smear preparation
8. Advantages of various disposable lab wares.
 - Different laboratory wares
 - Various disposable lab wares with advantages
9. Cleaning of lab wares
 - Cleaning solutions used in laboratory
 - Different lab wares and cleaning

10. Glass blowing techniques for preparation of lab wares
 - Introduction of making of simple glass wares in lab
 - Glass blowing techniques in detail with the help of diagrams
11. Preparation of cleaning solutions.
 - Different cleaning solutions used in lab
 - Preparation of different cleaning solutions
12. Cleaning of glasswares*
 - Different types of glass wares
 - Cleaning solution preparation
 - Cleaning of glasswares-procedure
13. Physical hazards in the lab
 - Different hazards in laboratory
 - Physical hazards and safety measures
14. Chemical hazards and safety measures
 - Different hazards in lab
 - Chemical hazards and hazardous labels
 - Safety precautions
15. Biological hazards
 - Various hazards in laboratory
 - Biological hazards and hazardous label
 - Universal safety precautions
16. Handling cuts, wounds and burns in a laboratory
17. Role of laboratory in health care delivery
18. Precautions to prevent physical hazards in the laboratory

ANSWER BRIEFLY

1. Heat resistant glassware

2. Glassware cleaning*
3. Disposable laboratory wares
4. Glass blowing technique and its use in laboratory*
5. First aid in alkali splashes in the eye
6. Fire safety measures in the lab
7. Safe disposal of specimens
8. Iodine containing antiseptics
9. Quality control in hematology laboratory
10. Cleaning of laboratory glass wares
11. First aid in a medical laboratory