

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2013
BIOCHEMISTRY
PAPER FIRST

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

Q. 1. What is the role and responsibilities of a MLT in the Biochemistry Laboratory?

Q. 2. Write short notes on:

a. Polysaccharides

(4)

b. Mutarotation

(3)

Q. 3. Write short note on Mono unsaturated and Poly unsaturated fatty acids .

Q. 4. Structure of proteins.

Q. 5. Classify carbohydrates with suitable examples. Explain one test done in lab for identification of reducing sugar?

Q. 6. Write short note on:

a. Non-Reducing sugar

(4)

b. Lipoproteins

(3)

Q. 7. What are the differences between DNA and RNA.

Q. 8. Discuss briefly:

a. Nucleotides

(4)

b. Glycogen

(3)

Q. 9. Write about Classification of amino acids.

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2013**BIOCHEMISTRY
PAPER FIRST (MCQ)****Time allotted for MCQ- 15 minutes****B : MCQs (Single response type):****(½ x 14= 7)**

Select the most appropriate answer and encircle the alphabet against it

1. Which of the following is a Non-reducing Sugar ?
 - a. Lactose
 - b. Sucrose
 - c. Glucose
 - d. Maltose
2. Which one of the following is NOT a Homopolysaccharide?
 - a. Starch
 - b. Cellulose
 - c. Heparin
 - d. Glycogen
3. Which of the following is an Essential fatty acid?
 - a. Oleic acid
 - b. Palmitic acid
 - c. Stearic acid
 - d. Linoleic acid
4. α -helix and β -pleated sheet are examples of:
 - a. Primary structure
 - b. Secondary structure
 - c. Tertiary structure
 - d. Quaternary structure
5. Invert sugar is:
 - a. Lactose
 - b. Sucrose
 - c. Maltose
 - d. Glucose
6. Benedict's test is done for the detection of:
 - a. Reducing sugar
 - b. Non reducing sugar
 - c. Starch
 - d. Glycogen
7. Which bond maintain the primary structure of proteins?
 - a. Glycosidic
 - b. Peptide
 - c. Hydrogen
 - d. Disulphide
8. Galactose is an epimer of :
 - a. Glucose
 - b. Fructose
 - c. Erythrose
 - d. Xylose
9. Which of the following is NOT a compound lipid?
 - a. Phospholipid
 - b. Glycolipid
 - c. Lipoproteins
 - d. Waxes
10. Simplest amino acid is:
 - a. Glycine
 - b. Alanine
 - c. Proline
 - d. Lysine
11. Non-essential Amino-acids:
 - a. Are not seen in tissue proteins
 - b. Synthesized in the body
 - c. Have no role in body metabolism
 - d. Have aromatic ring
12. At Isoelectric pH the amino acids and proteins have:
 - a. Maximum net charge
 - b. Maximum mobility
 - c. Maximum precipitation
 - d. Minimum buffering action
13. The glycosidic linkage in maltose is:
 - a. Alfa 1-4
 - b. Beta 1-4
 - c. Alfa 1-6
 - d. Alfa 1-2
14. Which of the following is NOT a phospholipids?
 - a. Sphingomyelin
 - b. Cerebroside
 - c. Cephalin
 - d. Lecithin

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2013
BIOCHEMISTRY - II
PAPER SECOND

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

Q. 1. Draw labelled diagrams of

(3½, 3½)

a. Mitochondria

b. Fluid Mosaic Model of cell membrane

Q. 2. Define pH. What is the normal range of pH in blood? How is it regulated?

(1,1,5)

Q. 3. Write short notes on –

(3½, 3½)

a. Surface Tension

b. Dialysis

Q. 4. Differentiate between-

(3½, 3½)

a. Co-enzyme and co-factor

b. Acidosis and Alkalosis

Q. 5. What are the factors affecting enzyme action?

Q. 6. Define-

(2,2,3)

a. Molar solution

b. Percent solution

c. Standard solution

Q. 7. What are enzymes? Classify them giving suitable examples.

(2,5)

Q. 8. What are isoenzymes? How they are useful in the diagnosis of various diseases.

(2,5)

Q. 9. What are buffers? Name the important buffer systems of the body. Calculate the pH of the buffer

solution whose pKa is 6.1 and $\text{HCO}_3^-/\text{H}_2\text{CO}_3$ ratio is 20:1.

(1,3,3)

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2013
BIOCHEMISTRY - II
PAPER SECOND (MCQ)

Time allotted for MCQ- 15 minutes

B : MCQs (Single response type):

(½ x 14= 7)

Select the most appropriate answer and encircle the alphabet against it

1. The surface tension of a solution is lowered by:
 - a. Bile pigments
 - b. Bile salts
 - c. Blood pigments
 - d. Electrolytes
2. Which of the following function does not occur in Golgi apparatus?
 - a. Protein synthesis
 - b. Protein sorting
 - c. Protein packaging
 - d. Protein secretion
3. Genetic material is stored in:
 - a. Nucleus
 - b. Ribosome
 - c. Golgi apparatus
 - d. Endoplasmic reticulum
4. Most important physiological buffer in blood is:
 - a. Haemoglobin buffer system
 - b. Phosphate buffer
 - c. Proteinate buffer
 - d. Bicarbonate buffer
5. Indicators are used to measure:
 - a. Osmosis
 - b. Surface Tension
 - c. Hydrogen ion concentration
 - d. Adsorption
6. Na-K pump is an example of:
 - a. Active transport
 - b. Passive transport
 - c. Symport
 - d. Facilitated diffusion
7. Organelle involved in the formation of ATP:
 - a. Nucleus
 - b. Mitochondria
 - c. Lysosome
 - d. Plasma membrane
8. 1 Molar solution is :
 - a. 1 gm of solute in 100 ml of solution
 - b. 1 mol of solute in 1000 ml of solution
 - c. 1 equivalent wt (gm) of substance in 1000 ml of solution
 - d. 1 mol of solution in 1000 gm of solvent
9. Competitive inhibitors act by binding to:
 - a. The active site of an enzyme
 - b. Regulatory sub-units of an enzyme
 - c. Non-competitive inhibitor
 - d. Enzyme cofactors
10. Which of the following is produced by the combination of apoenzyme and coenzyme?
 - a. Holoenzyme
 - b. Enzyme substrate complex
 - c. Allosteric site of an enzyme
 - d. Enzyme product complex
11. The exchange of material across the cell membrane takes place:
 - a. Only by diffusion
 - b. Only by active transport
 - c. Only by pinocytosis
 - d. All of the above
12. The initial rate of an enzyme catalysed reaction depends on:
 - a. The conc. of the enzyme
 - b. The conc. of the substrate
 - c. The affinity of the enzyme for its substrate
 - d. All of the above
13. Plasma membrane is made up of :
 - a. Lipid bilayer
 - b. Protein bilayer
 - c. Carbohydrate bilayer
 - d. Lipid single layer
14. An enzyme acts by:
 - a. Decreasing the pH
 - b. Increasing the pH
 - c. Increasing the energy of activation
 - d. Decreasing the energy of activation

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2013
MICROBIOLOGY (I)
PAPER THREE

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1.** Write Short Notes on: (4+3=7)
- a. Louis Pasteur
 - b. Robert Koch
- Q. 2.** Write short note on :- (4+3=7)
- a. Bacterial Flagella
 - b. Bacterial Capsule
- Q. 3.** Discuss in detail the bacterial growth curve with the help of diagrams.
- Q. 4.** Discuss in detail about Biomedical waste management.
- Q. 5.** Write short note on :- (4+3=7)
- a. Robertson's cooked meat broth
 - b. Blood agar
- Q. 6.** Define sterilization, asepsis and disinfection. Write about various chemical disinfectants used in microbiology laboratory.
- Q. 7.** Write down the principle of :- (4+3=7)
- a. Gram staining
 - b. ZN staining
- Q. 8.** Write in detail about various bacterial anaerobic culture methods.
- Q. 9.** Write down the various methods for antibiotic sensitivity testing. Write in details about Kirby Baner method.

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2013**MICROBIOLOGY (I)****PAPER THREE (MCQ)****Time allotted for MCQ- 15 minutes****B : MCQs (Single response type):****(½ x 14= 7)**

Select the most appropriate answer and encircle the alphabet against it

1. Who is called "Father of Microbiology"?
 - a. Robert Koch
 - b. Louis Pasteur
 - c. Joseph Lister
 - d. Edward Jenner
2. Red heat is used for sterilization of:
 - a. Inoculating loops
 - b. Glasswares
 - c. Soiled dressings
 - d. Glass slides
3. Gram stain is an example of:
 - a. Simple stain
 - b. Differential stain
 - c. Acid fast stain
 - d. Vital stain
4. Finbriae are present on many.....
 - a. Gram positive bacteria
 - b. Gram negative bacteria
 - c. Both of the above
 - d. None of the above
5. Most of the bacteria grow at pH:
 - a. >7
 - b. <7
 - c. 7.1 to 7.6
 - d. Any of the above
6. Penicillin & Cephalosporin interfere with:
 - a. Cell wall synthesis
 - b. DNA function
 - c. Cell membrane synthesis
 - d. Protein function
7. Sharps are discarded in:
 - a. Yellow bin
 - b. Blue bin
 - c. Green bin
 - d. Metal container
8. Gamma rays used for sterilization of:
 - a. Plastic syringes
 - b. Catheters
 - c. Cannulas
 - d. All of the above
9. Peptone water and nutrient broth are:
 - a. Basal media
 - b. Enriched media
 - c. Selective media
 - d. Enrichment media
10. Paper cups, office stationary are discarded in:
 - a. Yellow bin
 - b. Blue bin
 - c. Black bin
 - d. Metal container
11. Ideal temperature for bacterial growth is:
 - a. 25⁰ C
 - b. 45⁰ C
 - c. 37⁰ C
 - d. 50⁰ C
12. Blood agar medium is an example of:
 - a. Basal media
 - b. Enriched media
 - c. Selective media
 - d. Enrichment media
13. Which of the following is Gram positive bacilli?
 - a. Staphylococcus
 - b. Escherichia coli
 - c. Streptococcus
 - d. Corynebacterium
14. Albert stain is an example of:
 - a. Simple stain
 - b. Differential stain
 - c. Vital stain
 - d. Acid fast stain

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2013
MICROBIOLOGY (II)
PAPER FOUR

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1.** Write short notes on:
- a. Dark ground microscope
 - b. Electron Microscope
- Q. 2.** Write short notes on:
- a. Antigen
 - b. Antibody
- Q. 3.** Discuss with the help of diagram:
- a. McIntosh Filde's Jar
 - b. Candle jar
- Q. 4.** Discuss in detail collection, transport, processing and storage of CSF sample in Microbiology laboratory.
- Q. 5.** Write short notes on:
- a. Rabbit
 - b. Mice
- Q. 6.** Write short notes on:
- a. Universal work precautions
 - b. Laminar air flow
- Q. 7.** Discuss the following:
- a. Hot air oven
 - b. Autoclave
- Q. 8.** Write down the principle and give suitable examples:
- a. ELISA
 - b. Precipitation reaction
- Q. 9.** Write short notes on:
- a. Water Bath
 - b. Centrifuge

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2013
MICROBIOLOGY (II)
PAPER FOUR (MCQ)

Time allotted for MCQ- 15 minutes

B : MCQs (Single response type):

(½ x 14= 7)

Select the most appropriate answer and encircle the alphabet against it

1. Type I Hypersensitivity reaction is mediated by
 - a. Ig G
 - b. Ig E
 - c. Ig M
 - d. Ig A
2. Sample not to be refrigerated:
 - a. Stool
 - b. Urine
 - c. CSF
 - d. Pus
3. Chemical nature of an antigen may be:
 - a. Protein
 - b. Polysaccharide
 - c. Lipid
 - d. All of the above
4. Which immunoglobulin class crosses placenta?
 - a. IgG
 - b. IgM
 - c. IgA
 - d. IgE
5. Negative staining is done for:
 - a. Staphylococcus
 - b. Escherichia
 - c. Cryptococcus
 - d. Corynebacterium
6. Lowenstein Jensen (LJ) media is sterilized by:
 - a. Incubations
 - b. Autoclave
 - c. Hot air oven
 - d. Filtration
7. Fungal culture media is:
 - a. Blood agar
 - b. MacConkey agar
 - c. Sabouraud's dextrose agar
 - d. Chocolate agar
8. Glass wares are sterilized by:
 - a. Boiling
 - b. Hot air oven
 - c. Flaming
 - d. Phenol
9. Holding time & temperature for Hot Air Oven is:
 - a. 121 °C for 15 min.
 - b. 170 °C for 1hr.
 - c. 180 °C for 2 hrs
 - d. 160 °C for 1hr
10. Which is the largest immunoglobulin:
 - a. IgG
 - b. IgM
 - c. IgD
 - d. IgE
11. Father of "Antiseptic Surgery":
 - a. Robert Koch
 - b. Louis Pasteur
 - c. Joseph Lister
 - d. Edward Jenner
12. Candle jar is used for isolation of:
 - a. Capnophilic bacteria
 - b. Aerobic bacteria
 - c. Anaerobic bacteria
 - d. Mesophilic bacteria
13. Infected soiled dressings are discarded in:
 - a. Yellow bin
 - b. Black bin
 - c. Blue bin
 - d. Metal container
14. Which of the following is Gram negative cocci?
 - a. Staphylococcus
 - b. E. coli
 - c. Neisseria
 - d. Pneumococcus

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2013
PATHOLOGY (I)
PAPER FIVE

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1.** Write Short notes on: (3+4=7)
- a. Formation of blood
 - b. Composition and functions of blood
- Q. 2.** Discuss quality assurance in hematology.
- Q. 3.** Write short notes on: (3+4=7)
- a. Total leucocyte count
 - b. Hemoglobin estimation
- Q. 4.** Write in brief: (4+3=7)
- a. Various methods for ESR estimation
 - b. Factors which can influence ESR
- Q. 5.** Write short notes on: (4+3=7)
- a. CSF examination
 - b. Physical examination of urine
- Q. 6.** Write in brief: (4+3=7)
- a. Benedicts test
 - b. Fouchets test
- Q. 7.** Discuss in brief about: (4+3=7)
- a. Romanowsky dyes
 - b. Method for making good smear
- Q. 8.** Write in brief: (3+4=7)
- a. Semen examination
 - b. Anticoagulants
- Q. 9.** Write in brief: (3+4=7)
- a. Packed cell volume
 - b. Morphology of white blood cells

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2013**PATHOLOGY (I)
PAPER FIVE (MCQ)****Time allotted for MCQ- 15 minutes****B : MCQs (Single response type):****(½ x 14= 7)**

Select the most appropriate answer and encircle the alphabet against it

1. Normal cell count of CSF is:
 - a. 0 – 4 cells/cumm.
 - b. 5 – 10 cells/cumm.
 - c. 10 – 15 cells/cumm.
 - d. 15 – 20 cells/cumm.
2. Rothera's test is done for:
 - a. Ketones
 - b. Blood
 - c. Sugar
 - d. Bile pigments
3. In urine Bence Jones proteins will appear at:
 - a. 90 – 100° C
 - b. 90 – 100° F
 - c. 50 – 60° C
 - d. 50 – 60° F
4. Crystals present in alkaline urine are:
 - a. Oxalates
 - b. Phosphates
 - c. Calcium carbonate
 - d. Ammonium urates
5. In hemoglobin iron is present in:
 - a. Ferrous form
 - b. Ferric form
 - c. Hemosiderin
 - d. Ferritin
6. Normal range of TLC is:
 - a. 12, 000 – 16, 000/ Cumm.
 - b. 4, 000 – 11, 000/ Cumm.
 - c. 1, 000 – 3, 000/ Cumm.
 - d. 16, 000 – 20, 000/ Cumm.
7. Normal RBC count is:
 - a. 4.0 – 5.5 million/Cumm.
 - b. 5.5 – 6.5 million/Cumm.
 - c. 2.5 – 4.0 million/Cumm.
 - d. 6.5 – 8.0 million/Cumm.
8. Anticogulant used for blood sugar estimation is:
 - a. Sodium chloride
 - b. EDTA
 - c. Sodium fluoride
 - d. Double oxalates
9. Microcytic hypochronic anaemia is seen in:
 - a. Iron deficiency anaemia
 - b. Vitamin B₁₂ deficiency
 - c. Folic acid deficiency
 - d. Calcium deficiency
10. Normal range of ESR by Westergren's method:
 - a. 0 – 10 in 1st Hr.
 - b. 10 – 20 in 1st Hr.
 - c. 20 – 30 in 1st Hr.
 - d. 40 – 50 in 1st Hr.
11. Neutrophilia is seen in:
 - a. Chronic diseases
 - b. Allergic condition
 - c. Acute bacterial infection
 - d. Parasitic infection
12. Eosinophilia is seen in:
 - a. Chronic diseases
 - b. Allergic condition
 - c. Acute bacterial infection
 - d. Post surgery
13. Which of the following test is used for blood in urine?
 - a. Fauchets test
 - b. Benedicts test
 - c. Hay's sulphur test
 - d. Benzidine test
14. Normal specific gravity of urine:
 - a. 1.008 – 1.030
 - b. 1.004 – 1.008
 - c. 1.030 – 1.050
 - d. 1.050 – 1.080

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2013
PATHOLOGY (II)
PAPER SIX

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. Write steps of cerebrospinal fluid examination.
- Q. 2. Describe various types of fixatives.
- Q. 3. Draw a neat labeled diagram of cell and their organelle. Mention their functions.
- Q. 4. Define decalcification. Enumerate and discuss various methods of decalcification.
- Q. 5. Write about automatic tissue processor.
- Q. 6. Describe various types of microtomes.
- Q. 7. Describe Universal precautions.
- Q. 8. Describe various types of microscopes. Write about maintenance of compound microscope.
- Q. 9. Draw a neat labeled diagram of organs of respiratory system.

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2013**PATHOLOGY (II)****PAPER SIX (MCQ)****Time allotted for MCQ- 15 minutes****B : MCQs (Single response type):****(½ x 14= 7)**

Select the most appropriate answer and encircle the alphabet against it

1. Which cell organelle is also called as power house of the cell?
 - a. Nucleus
 - b. Plasma membrane
 - c. Golgi body
 - d. Mitochondria
2. Which of the following is NOT a fixative?
 - a. Absolute alcohol
 - b. Formaldehyde
 - c. Normal saline
 - d. Bowen's fluid
3. Surface decalcification is done by:
 - a. Absolute alcohol
 - b. 5% HCl
 - c. Normal saline
 - d. Microwave
4. Underfixation of histopathology tissue causes:
 - a. Necrosis
 - b. Apoptosis
 - c. Autolysis
 - d. Gangrene
5. The temperature of water bath at time of microtomy should be:
 - a. 10 °C
 - b. 37 °C
 - c. 60 °C
 - d. 100 °C
6. Which of the following reagent is used as mounting medium:
 - a. Absolute alcohol
 - b. Formalin
 - c. Paraffin alcohol
 - d. D.P.X.
7. Xylene used in histopathology processing is miscible in:
 - a. Water
 - b. Paraffin wax
 - c. Both
 - d. None
8. Ratio of specimen to fixative is:
 - a. 1 : 1
 - b. 1 : 10
 - c. 10 : 1
 - d. 10 : 10
9. Protein degradation in a cell takes place in which cell organelle:
 - a. Nucleus
 - b. Ribosomes
 - c. Endoplasmic reticulum
 - d. Lysosomes
10. Magnification of compound microscope with 40X objective and 10X eye piece is:
 - a. 4 times
 - b. 40 times
 - c. 400 times
 - d. 4000 times
11. The ascetic fluid is present in ----- cavity.
 - a. Pleural
 - b. Peritoneal
 - c. Pericardial
 - d. None of the above
12. Write proper sequence of order of processing of tissues in histopathology:
 - a. Grossing, microtomy, embedding, fixation
 - b. Fixation, embedding, microtomy, grossing
 - c. Embedding, microtomy, fixation, grossing
 - d. Fixation, grossing, embedding, microtomy
13. The chemical NOT used for histopathology processing:
 - a. Xylene
 - b. Normal saline
 - c. Formal saline
 - d. Paraffin wax
14. Which things are needed at the time of purchase of new equipments in a laboratory?
 - a. Operator manual
 - b. Training
 - c. Calibration
 - d. All of the above

Regn. No.....

Paper Code: BM- 101...

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2015
BIOCHEMISTRY - I
PAPER FIRST

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1.** Draw a diagram of eukaryotic cell showing different cell organelles.
- Q. 2.** Define Carbohydrates, classify them giving one example from each class/subclass.
- Q. 3.** Write short notes on :
 - a.** Mutarotation
 - b.** Invert sugars and Inversion.
- Q. 4.** Describe the chemistry and functions of phospholipids.
- Q. 5.** What are proteins? Describe the classification and importance of proteins.
- Q. 6.** What are amino acids? Write the classification of amino acids.
- Q. 7.** Describe the structural organization and functions of DNA.
- Q. 8.** Write short notes on :
 - a.** Plasma proteins & methods of their separation.
 - b.** Denaturation and coagulation.
- Q. 9.** Write short notes on :
 - a.** Different types of purine and pyrimidine bases in nucleotide.
 - b.** Tests for reducing sugar, protein, ketone bodies and blood in urine.

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2015
BIOCHEMISTRY- I
PAPER FIRST (MCQ)

Time allotted for MCQ- 15 minutes

B : MCQs (Single response type):

(½ x 14= 7)

Select the most appropriate answer and encircle the alphabet against it

1. How many bonds can carbon atom form:
 - a. 2
 - b. 4
 - c. 1
 - d. 3
2. What is the general formula of carbohydrates:
 - a. $(CH_2O)_n$
 - b. $(C_2HO)_n$
 - c. $(CHOHOH)$
 - d. $(COOH)$
3. In what category of organic molecules are sugars placed:
 - a. Proteins
 - b. Lipids
 - c. Hormones
 - d. Carbohydrates
4. What are long chains of sugars called:
 - a. Monosaccharides
 - b. Disaccharides
 - c. Polysaccharides
 - d. Proteins
5. What is the most common monosaccharides:
 - a. Cellulose
 - b. Lipid
 - c. Starch
 - d. Protein
6. What type of organic molecule is a Fat?
 - a. Cellulose
 - b. Lipid
 - c. Starch
 - d. Protein
7. Fats and oil are composed of what two groups of molecules:
 - a. Starch and Sugar
 - b. Glucose and Fructose
 - c. Fatty acids and glycerol
 - d. Water and cellulose
8. What best describes phospholipid molecules:
 - a. Their Chemical Formula is $(CH_2O)_n$
 - b. The form cell membranes
 - c. They are proteins
 - d. They are ionic
9. What monomers make up proteins:
 - a. Starches
 - b. Enzymes
 - c. Nucleic acids
 - d. Amino acids
10. How many different amino acids are there:
 - a. 10
 - b. 20
 - c. 4
 - d. 100
11. What are the bonds between amino acids called?
 - a. Hydrogen
 - b. Peptide
 - c. Ionic
 - d. Covalent
12. Which of the following types of molecules is found in genetic material?
 - a. Cellulose
 - b. Enzymes
 - c. Lipids
 - d. Nucleic acids
13. Which of the following are found in nucleotides of DAN and RNA respectively?
 - a. Deoxyribose and Ribose
 - b. Proteins and enzymes
 - c. Fats and oils
 - d. Sugars and Starches
14. What are the four bases in DNA:
 - a. First, Second, Third, Fourth
 - b. Adenine, Guanine, Cytosine, Uracil
 - c. Nitrogen, Hydrogen, Carbon, Phosphate
 - d. Adenine, Guanine, Cytosine, Thymine

Regn. No.....

Paper Code: BM- 102...

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2015
BIOCHEMISTRY - II
PAPER SECOND

[Max Marks: 70]

[Time allotted: Three hours]

Note: Attempt all questions

Draw suitable diagram wherever necessary

(7 x 9 = 63)

A : Short answer questions:

- Q. 1. Write the laboratory rules, ethics and professional code of conduct of laboratory technologist.
- Q. 2. Explain how to collect, handle and transfer laboratory specimens.
- Q. 3. Explain the functions of balance and centrifuge in medical laboratory.
- Q. 4. Write about the cleaning of different medical laboratory wares.
- Q. 5. Explain the importance of first aid for laboratory accidents.
- Q. 6. Define the following :
- a. Molarity of a solution
 - b. Molality of a solution.
- Q. 7. Write the principle and importance of surface tension and osmosis.
- Q. 8. Define enzyme. How enzymes are classified according to IUB?
- Q. 9. Write short notes on :
- a. Buffers and important buffers in the body.
 - b. Factors effecting enzyme action.

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2015**BIOCHEMISTRY - II****PAPER SECOND (MCQ)****Time allotted for MCQ- 15 minutes****B : MCQs (Single response type):****(½ x 14= 7)**

Select the most appropriate answer and encircle the alphabet against it

1. The disinfectants commonly used for disinfection of materials contaminated with blood and fluids:
 - a. Sodium hypochlorite
 - b. Sodium chloride
 - c. Alcohols
 - d. Water
2. The osmotic pressure of a solution increases with the rise in:
 - a. Humidity
 - b. Temperature
 - c. Atmospheric pressure
 - d. Surface tension
3. When pH falls by 1 Unit what is the change in the hydrogen ion concentration:
 - a. Increases 10 times
 - b. Decreases 10 times
 - c. Increases 20 times
 - d. Decreases 20 times
4. The molecule that fits into the enzyme's active site is the :
 - a. Codon
 - b. Vitamin
 - c. Substrate
 - d. Coenzyme
5. In dialysis, protein molecules are separated on the basis of
 - a. Molecular size
 - b. Net molecular charge
 - c. Dialysis Coefficient
 - d. Pressure across membrane
6. 10 M NaOH, which is diluted 1:20= _____ M
 - a. 0.5
 - b. 0.10
 - c. 0.20
 - d. 0.25
7. Henderson Hasselbakh equation is:
 - a. $pH = pK + \log [\text{salt}]/[\text{Acid}]$
 - b. $pH = \log [\text{salt}]/[\text{Acid}] - pK$
 - c. $pK = pH + \log [\text{Salt}]/[\text{Acid}]$
 - d. $pK = \log [\text{Salt}]/[\text{Acid}] - pK$
8. Arterial blood specifically collected for :
 - a. Blood Culture
 - b. Blood Smears
 - c. Blood gas analysis
 - d. Protein
9. Equipment used to effectively draw venous blood:
 - a. Tourniquet
 - b. Lancet
 - c. Micropipet
 - d. Repipettor
10. One who draws blood in clinical laboratory is:
 - a. Biochemistry
 - b. Pathologist
 - c. Microbiologist
 - d. Phlebotomist
11. Coenzymes are:
 - a. Inorganic cofactor compounds
 - b. Cofactor compounds
 - c. Enzyme – cofactor compounds
 - d. Organic cofactor compounds
12. Enzymes are:
 - a. Carbohydrate
 - b. RNA
 - c. Proteins
 - d. Fats
13. Lock and key theory of enzyme action was proposed by:
 - a. Fischer
 - b. Koshland
 - c. Kuhnē
 - d. Arrhenius
14. The phenomenon of osmosis is opposite to that of:
 - a. Diffusion
 - b. Effusion
 - c. Affusion
 - d. Coagulation

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2015
MICROBIOLOGY (I)
PAPER THREE

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. Discuss the Principle and use of: (3.5+3.5=7)
a. Autoclave
b. Hot air oven
- Q. 2. Write on : (3.5+3.5=7)
a. Enumerate Dry heat methods of sterilization.
b. Write a note with a suitable diagram on Kirby Bauer method of Antibiotic sensitivity testing.
- Q. 3. Write on: (3.5+3.5=7)
a. Principle, Procedure and Interpretation of Gram staining.
b. Principle, Procedure and Interpretation of ZN staining.
- Q. 4. Write briefly on: (3.5+3.5=7)
a. Robertson's cooked meat broth.
b. Special media for *Mycobacterium tuberculosis*.
- Q. 5. Write short notes on : (3.5+3.5=7)
a. Biomedical waste management.
b. Universal work precautions.
- Q. 6. Write short notes on: (3.5+3.5=7)
a. Bacterial capsule.
b. Categories of waste.
- Q. 7. Write briefly on: (3.5+3.5=7)
a. Enrichment media.
b. Louis Pasteur.
- Q. 8. Write short notes on: (3.5+3.5=7)
a. Bacterial growth curve.
b. Blood spill management.
- Q. 9. Write short notes on : (3.5+3.5=7)
a. Anaerobic culture methods.
b. Normal microbial flora.

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2015
MICROBIOLOGY (I)
PAPER THREE (MCQ)

Time allotted for MCQ- 15 minutes

B : MCQs (Single response type):

($\frac{1}{2} \times 14 = 7$)

Select the most appropriate answer and encircle the alphabet against it

1. Which of the following media is sterilization by inspissations?
 - a. Blood agar
 - b. Peptone water
 - c. Loefflers serum slope
 - d. MacConkey agar
2. Which part of the bacteria does penicillin act on?
 - a. Ribosome
 - b. Cell wall
 - c. Nucleus
 - d. Cell membrane
3. Holding time & temperature for Hot Air Oven is:
 - a. 121°C for 15 min.
 - b. 170 °C for 1hr.
 - c. 180 °C for 2 hrs
 - d. 160 °C for 1hr
4. Bacterial loop is sterilized by:
 - a. Autoclaving
 - b. Hot air oven
 - c. Flaming till red hot
 - d. Phenol
5. Ideal temperature for bacterial culture in an incubator is:
 - a. 25 °C
 - b. 37 °C
 - c. 45 °C
 - d. 50 °C
6. Gloves are discarded in
 - a. Yellow bin
 - b. Blue bin
 - c. Green bin
 - d. Metal container
7. Sharp instruments are discarded in
 - a. Yellow bin
 - b. Blue bin
 - c. Green bin
 - d. Metal container
8. Blood sample in bed side is inoculated in which media
 - a. Brain heart infusion broth
 - b. Blood agar
 - c. MacConkey agar
 - d. Chocolate agar
9. In case of delay in processing which of the following sample is not refrigerated
 - a. Blood
 - b. Urine
 - c. CSF
 - d. Pus
10. Purpose of using biosafety cabinet for processing a sample is
 - a. To prevent contamination
 - b. To prevent infection
 - c. Both (a.) &(b)
 - d. To do PCR
11. The organ of locomotion of bacteria is
 - a. Capsule
 - b. Slime
 - c. Flagella
 - d. Fimbriae
12. The construction and use of compound microscope is attributed to
 - a. Antony van leeuwenhoek
 - b. Louis Pasteur
 - c. Robert Koch
 - d. Joseph Lister
13. Vaccines can be best sterilized by
 - a. Hot air oven
 - b. Autoclave
 - c. Filtration
 - d. Incinerator
14. The most reliable and widely used anaerobic jar is
 - a. Candle jar
 - b. Inspissator
 - c. McIntosh-Fildes jar
 - d. Incubator

Regn. No.....

Paper Code: BM- 104...

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2015

MICROBIOLOGY (II)

PAPER FOUR

[Max Marks: 70]

[Time allotted: Three hours]

Note: Attempt all questions

Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1.** Draw a labeled schematic diagram of a compound microscope showing all important parts and the path of light from bulb to image. **(7)**
- Q. 2.** Name the different materials commonly used to make bacteriological loops. How do you sterilize bacteriological loops (different methods are used depending on the material)? **(3 + 4 = 7)**
- Q. 3.** Write short notes on : **(3)**
- a. Use of centrifuge in the laboratory. **(3)**
 - b. Variables that determine efficiency of centrifugation. **(1)**
 - c. Most important thing to check while loading a centrifuge for a run. **(1)**
- Q. 4.** What is the most important difference between water treated in a distillation plant and water treated in a deionizer? **(2 + 1 + 2 + 2 = 7)**
- Q. 5.** Suppose you have made some distilled water in a distillation plant and left it in clean beaker covered loosely with a glass Petri dish for 24 hours. Next day you test the pH of the distilled water in the beaker and find that it is 6.3. However, your book says that the pH of distilled water should be 7. What is the possible reason for this unexpected pH? **(1)**
- a. A problem with your distillation plant? **(1)**
 - b. A problem with the pH meter? **(1)**
 - c. A problem with the beaker? **(4)**
 - d. Any other reason?
- Q. 6.** a. Draw a labeled schematic diagram of a candle jar (show the different parts; no need to be artistic) **(2)**
- b. What is the concentration of oxygen in a candle jar. **(2)**
- i. Before closing the lid
 - ii. After the candle is extinguished.
- c. What is concentration of carbon dioxide in a candle jar after the candle is extinguished? **(2)**
- d. Name one bacterium that grows better in a candle jar **(1)**
- Q. 7.** Name two different substances used for making electrophoresis gels. Name two different buffers used for electrophoresis. Name two important variables that determine the mobility of molecules in electrophoresis. Name one important genetic disease diagnosed by electrophoresis **(2 + 2 + 2 + 1 = 7)**
- Q. 8.** Name two physical methods for killing bacteria. Name an effective temperature required to kill bacteria by each of these methods. How will you determine whether all bacteria have been killed? **(2 + 2 + 3 = 7)**
- Q. 9.** Name two important types of cells involved in innate immunity. Name two important types of cells involved in acquired immunity. Describe one important difference between innate and acquired immunity **(2 + 2 + 3 = 7)**

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2015
MICROBIOLOGY (II)
PAPER FOUR (MCQ)

Time allotted for MCQ- 15 minutes

B : MCQs (Single response type):

(½ x 14= 7)

Select the most appropriate answer and encircle the alphabet against it

1. Which of the following stains is used for fluorescent microscopy?
 - a. Alamar blue
 - b. Methylene blue
 - c. Acridine orange
 - d. Toluidine blue
2. A compound microscope can give a maximum useful magnification of
 - a. 1000 x
 - b. 1200 x
 - c. 3000 x
 - d. 5000 x
3. Which of the following bacterial species is oxidase-positive?
 - a. *Streptococcus mutans*
 - b. *Escherichia coli*
 - c. *Staphylococcus aureus*
 - d. *Pseudomonas aeruginosa*
4. Which of the following cells regulates the cell-mediated arm of acquired immunity?
 - a. T helper cells
 - b. T cytotoxic cells
 - c. B cells
 - d. Macrophages
5. A farmer is brought to hospital after being severely injured while ploughing his field with his tractor. Neither the patient, nor his relatives can remember his tetanus vaccination status, so the surgeon decides to give him one injection of tetanus toxoid (tetanus vaccine) in one arm, and an injection of readymade antibodies raised against tetanus toxin in human volunteers in another arm. In this particular situation, the surgeon is practicing
 - a. Active immunization
 - b. Passive immunization
 - c. Both active and passive immunization
 - d. Neither active nor passive immunization
6. What is the maximum temperature achievable in an uncovered water bath in Jolly Grant?
 - a. 50.3°C
 - b. 70.5°C
 - c. 98.1°C
 - d. 100.6°C
7. You want to pour autoclaved nutrient agar into sterile Petri dishes. Which of the following is the cheapest option to prevent contamination of the plates while pouring?
 - a. Class I Biological Safety Cabinet
 - b. Class II Biological Safety Cabinet
 - c. Class III Biological Safety Cabinet
 - d. Clean air bench
8. You need to dispense 5 µL of a broth culture of multi-drug resistant *Mycobacterium tuberculosis* with a micropipette. What is the best way to prevent contamination of the **inside** of the pipette?
 - a. Cover the hand-piece of the micropipette with sterile cloth
 - b. Wipe the outside of the pipette with alcohol after use
 - c. Use microtips with built-in filters
 - d. Use the pipette in horizontal position
9. The basic physical principle behind an ELISA reader is described by
 - a. Beer's law
 - b. Boyle's law
 - c. Poiseuille's law
 - d. Newton's law
10. One of the following temperatures can **NEVER** be achieved either in a deep freezer, or in liquid nitrogen, or in liquid helium. What is it?
 - a. -230°C
 - b. -250°C
 - c. -260°C
 - d. -280°C
11. What is the best condition for storing a compound microscope?
 - a. Hot and dry
 - b. Hot and humid
 - c. Cool and dry
 - d. Cool and humid
12. To get the best performance from an analytical balance, it must be kept
 - a. Free of dust
 - b. Away from air currents
 - c. On a level surface
 - d. All of the above
13. McIntosh Fildes jars can be used to achieve,
 - a. CO₂ enriched atmosphere
 - b. Microaerophilic atmosphere
 - c. Anaerobic atmosphere
 - d. All of the above
14. Which of the following enzymes is commonly used as a label in ELISA?
 - a. Catalase
 - b. Oxidase
 - c. Peroxidase
 - d. Neuraminidase

Regn. No.....

Paper Code: BM- 105...

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2015
PATHOLOGY (I)
PAPER FIVE

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. Name various anticoagulants and discuss their mode of action.
- Q. 2. Discuss Quality Assurance in Hematology.
- Q. 3. What are various methods used for Hemoglobin estimation? Discuss cyanmethemoglobin method in detail.
- Q. 4. What are Romanowsky dyes? Write staining procedure for blood smears.
- Q. 5. What are various normal blood cells? How will you identify these cells? (Draw labeled diagram)
- Q. 6. What is Erythrocyte sedimentation rate? Discuss various factors influencing ESR.
- Q. 7. Discuss in brief:
 - a. Benedicts Test
 - b. Rothera's Test
- Q. 8. What are various points will you note in physical examination of urine?
- Q. 9. What are various changes in CSF in case of Bacterial meningitis?

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2015
PATHOLOGY (I)
PAPER FIVE (MCQ)

Time allotted for MCQ- 15 minutes

B : MCQs (Single response type):

(½ x 14= 7)

Select the most appropriate answer and encircle the alphabet against it

1. In urine examination heat coagulation test is done for:
 - a. Sugar
 - b. Bile pigment
 - c. Protein
 - d. Ketone
2. Normal cell count in CSF:
 - a. 0-4 cells / Cu mm
 - b. 5-10 cells / Cu mm
 - c. 10-15 cells / Cu mm
 - d. 15-20 cells / Cu mm
3. Normal MCV level ranges:
 - a. 80-100 fl
 - b. 60-80 fl
 - c. 50-70 fl
 - d. 100-120 fl
4. Colors of vacutainer top for Heparin is:
 - a. Violet
 - b. Red
 - c. Green
 - d. Grey
5. Purple color vacutainer is used for :
 - a. Bl. Glucose estimation
 - b. Biochemical tests
 - c. Hematological Tests
 - d. Coagulation studies
6. In urine Rothera's test is done for:
 - a. Blood
 - b. Sugar
 - c. Protein
 - d. Ketone
7. Turk's fluid is used for:
 - a. RBC count
 - b. WBC count
 - c. Platelet count
 - d. Absolute eosinophils count
8. Normal range for ESR:
 - a. 0-10 mm in 1st hour
 - b. 20-30 mm in 1st hour
 - c. 0-10 mm in 24 hours
 - d. 20-30 mm in 24 hours
9. Wintrobe's tube is used for:
 - a. ESR estimation
 - b. PCV
 - c. Both
 - d. None
10. Drabkins solutions is used for:
 - a. WBC count
 - b. RBC count
 - c. Platelet count
 - d. Hemoglobin estimation
11. Normal platelet count is:
 - a. 4-6 Lac/ cu mm
 - b. 6-8 Lac/ cu mm
 - c. 1.5-4 Lac/ cu mm
 - d. 0.5-1.5 Lac/ cu mm
12. Normal Hemoglobin level in adult female is:
 - a. 10-12 gm / dl
 - b. 12-15 gm / dl
 - c. 15-18 gm / dl
 - d. 8-10 gm / dl
13. Normal MCH level is:
 - a. 40-66 pgm
 - b. 34-56 pgm
 - c. 18-26 pgm
 - d. 26-34 pgm
14. Life span of normal RBC is:
 - a. 100 days
 - b. 80 days
 - c. 120 days
 - d. 140 days

Regn. No.....

Paper Code: BM- 106...

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2015
PATHOLOGY (II)
PAPER SIX



[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions
Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. Define and enumerate universal precautions.
- Q. 2. Discuss various types of microscope. Draw neat labelled diagram of compound light microscope.
- Q. 3. Define structure (with neat labelled diagram) and functions of various cell organelles.
- Q. 4. Describe layers of skin (with neat labelled diagram) and various appendages.
- Q. 5. Discuss various types of fixatives.
- Q. 6. Describe decalcification. Discuss various methods of decalcification.
- Q. 7. Describe various types of microtomes.
- Q. 8. Describe structure (with neat labelled diagram) of nephron.
- Q. 9. Describe steps of fine needle aspiration cytology processing.

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2015
PATHOLOGY (II)
PAPER SIX (MCQ)

Time allotted for MCQ- 15 minutes

B : MCQs (Single response type):

(½ x 14= 7)

Select the most appropriate answer and encircle the alphabet against it

1. Embedding for electron microscopy is done in :
 - a. Paraffin wax
 - b. N methyl meth-acrylate
 - c. DPX
 - d. None of the above
2. Power house of the cell is:
 - a. Nucleus
 - b. Ribosomes
 - c. Golgi body
 - d. Mitochondria
3. True about pulmonary veins is:
 - a. Carry oxygenated blood
 - b. Drains into right side of heart
 - c. Delivers blood to liver
 - d. None of the above
4. The epithelial covering of oral mucosa is:
 - a. Keratinized stratified squamous epithelium
 - b. Columnar epithelium
 - c. Non keratinised stratified squamous epithelium
 - d. Transitional epithelium
5. Columnar type of epithelium is present in :
 - a. Skin
 - b. Urethra
 - c. Colon
 - d. Urinary bladder
6. Cellular unit of liver is:
 - a. Hepatocyte
 - b. Erythrocyte
 - c. Thrombocyte
 - d. Myocyte
7. Nephrons are present in which organ?
 - a. Liver
 - b. Kidney
 - c. Heart
 - d. Muscles
8. Lining epithelium of fallopian tube is
 - a. Ciliated columnar epithelium
 - b. Squamous epithelium
 - c. Transitional epithelium
 - d. Stratified squamous epithelium
9. Cell type involved in feeling of pain sensation is:
 - a. Nephron
 - b. Neuron
 - c. Microglia
 - d. Cardiomyocytes
10. Fixative preferred for electron microscopy is:
 - a. Absolute alcohol
 - b. Formaldehyde
 - c. Gluteraldehyde
 - d. Normal saline
11. Cervical exfoliative smears are stained by:
 - a. Hematoxyline and eosin stain
 - b. Leishman stain
 - c. Papanicolou stain
 - d. Periodic acid Schiff stain
12. Lining epithelium of urinary bladder is:
 - a. Transitional epithelium
 - b. Squamous epithelium
 - c. Stratified squamous epithelium
 - d. Columnar epithelium
13. Protein synthesis in cell occurs in:
 - a. Nucleus
 - b. Ribosome
 - c. Golgi body
 - d. Lysosome
14. Oxygen transport in blood is done by:
 - a. Plasma
 - b. White blood cells
 - c. Red blood cells
 - d. Platelets

Regn. No.....

Paper Code: BM- 101...

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2016
BIOCHEMISTRY - I
PAPER FIRST

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1.** Draw the structure of mitochondria and write its important functions
- Q. 2.** Write a note on the essential fatty acids and their significance.
- Q. 3.** Describe the secondary structure of proteins with the help of a well labeled diagram.
- Q. 4.** Classify the amino acids giving examples of each class.
- Q. 5.** Describe the Watson - Crick model of DNA.
- Q. 6.** What are nucleotides? List their functions. (3+4)
- Q. 7.** Which is the major storage polysaccharide in human beings? How does it differ from starch?(1+6)
- Q. 8.** What is the normal range of Cholesterol? Explain its biochemical role and importance. (1+6)
- Q. 9.** Differentiate between:
- a.** Epimers and Anomers
 - b.** Reducing Sugar and Non Reducing Sugar

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2016
BIOCHEMISTRY- I
PAPER FIRST (MCQ)

Time allotted for MCQ- 15 minutes

B : MCQs (Single response type):

(½ x 14= 7)

Select the most appropriate answer and encircle the alphabet against it

1. Which of the following is NOT a polysaccharide?
 - a. Starch
 - b. Inulin
 - c. Glycogen
 - d. Galactose
2. All of the following are composed exclusively of Glucose except :
 - a. Glycogen
 - b. Starch
 - c. Lactose
 - d. Maltose
3. t-RNA molecule has the following :
 - a. A clover leaf structure
 - b. A loop containing minor base – dihydro uracil
 - c. An anticodon arm
 - d. All of the above
4. All of the following are sulfur containing amino acids found in proteins EXCEPT -
 - a. Cysteine
 - b. Threonine
 - c. Cystine
 - d. Methionine
5. An unsaturated fatty acid with 16 carbon atoms and one double bond is:
 - a. Palmitic acid
 - b. Oleic acid
 - c. Palmitoleic acid
 - d. Linoleic acid
6. The degree of unsaturation of a fat is given by:
 - a. Saponification number
 - b. Acetyl number
 - c. Acid number
 - d. Iodine number
7. Which of the following is NOT a glycolipid?
 - a. Ganglioside
 - b. Ceramide
 - c. Cerebroside
 - d. Globoside
8. One of the following lipids is NOT found in cell membranes:
 - a. Phospholipids
 - b. Cholesterol
 - c. Glycolipids
 - d. Triglycerides
9. Glutathione is a:
 - a. Dipeptide
 - b. Tripeptide
 - c. Oligopeptide
 - d. Polypeptide
10. The amino acid containing an imidazole ring is:
 - a. Histidine
 - b. Arginine
 - c. Tyrosine
 - d. Tryptophan
11. When proteins are denatured the bond which is NOT broken is:
 - a. Hydrogen
 - b. Peptide
 - c. Vander Waal forces
 - d. Ionic interactions
12. The human plasma proteins are a mixture of :
 - a. Simple proteins
 - b. Glycoproteins
 - c. Lipoproteins
 - d. All of the above
13. The complementary strands of DNA are held together by:
 - a. Covalent bonds
 - b. Coordinate bonds
 - c. Hydrogen bonds
 - d. Disulphide bonds
14. The bond formed between 2 monosaccharides units is :-
 - a. Hydrogen bond
 - b. Glycosidic bond
 - c. Electrostatic bond
 - d. Peptide bond

Regn. No.....

Paper Code: BM- 102...

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2016
BIOCHEMISTRY - II
PAPER SECOND

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1.** What is the role and responsibilities of a MLT in the Biochemistry Laboratory? (3½+ 3½)
- Q. 2.** Write briefly about : (1+1+5)
- (a)** Various kinds of hazards in the Biochemistry lab.
- (b)** Handling of Radioactive chemicals in the Lab.
- Q. 3.** Define pH. What is the normal range of pH in blood? How is it regulated? (3½+ 3½)
- Q. 4.** What are the factors affecting enzyme action? (2+5)
- Q. 5.** Differentiate between : (2+5)
- (a)** Co-enzyme and co-factor
- (b)** Acidosis and Alkalosis
- Q. 6.** What are enzymes? Classify enzymes giving suitable examples. (2+2+3)
- Q. 7.** What are buffers? Name the important buffer systems of the body. (3½+ 3½)
- Q. 8.** Define : (2+2+3)
- (a)** Molar solution
- (b)** Percent solution
- (c)** Standard solution
- Q. 9.** Write short notes on : (3½+ 3½)
- (a)** Surface Tension
- (b)** Dialysis

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2016
BIOCHEMISTRY - II
PAPER SECOND (MCQ)

Time allotted for MCQ- 15 minutes

(½ x 14= 7)

B : MCQs (Single response type):

Select the most appropriate answer and encircle the alphabet against it

1. The surface tension of a solution is lowered by:
 - a. Bile pigments
 - b. Bile salts
 - c. Blood pigments
 - d. Electrolytes
2. Most important physiological buffer in blood is:
 - a. Haemoglobin buffer system
 - b. Phosphate buffer
 - c. Proteinate buffer
 - d. Bicarbonate buffer
3. Indicators are used to measure:
 - a. Osmosis
 - b. Surface Tension
 - c. Hydrogen ion concentration
 - d. Adsorption
4. 1 Molar solution is :
 - a. 1 gm of solute in 100 ml of solution
 - b. 1 mol of solute in 1000 ml of solution
 - c. 1 equivalent wt (gm) of substance in 1000 ml of solution
 - d. 1 mol of solution in 1000 gm of solvent
5. Competitive inhibitors act by binding to:
 - a. the active site of an enzyme
 - b. regulatory sub-units of an enzyme
 - c. the site other than the active of an enzyme
 - d. enzyme cofactors
6. The exchange of material across the cell membrane takes place:
 - a. Only by diffusion
 - b. Only by active transport
 - c. Only by pinocytosis
 - d. All of the above
7. The initial rate of an enzyme catalysed reaction depends on:
 - a. The conc. of the enzyme
 - b. The conc. of the substrate
 - c. The affinity of the enzyme for its substrate
 - d. All of the above
8. Phenolphthalein turns pink in which medium?
 - a. Neutral
 - b. Alkaline
 - c. Acidic
 - d. None of the above
9. Hay's sulfur test is based on the principle of :
 - a. Viscosity
 - b. Osmotic Pressure
 - c. Surface tension
 - d. None of the above
10. The shape of curve between temperature and enzyme velocity is :
 - a. Straight line
 - b. Sigmoid
 - c. Bell Shaped
 - d. Hyperbolic
11. The fluid present in the joint cavity is known as :
 - a. Pleural fluid
 - b. Synovial fluid
 - c. Pericardial fluid
 - d. Serum
12. A non sugar which gives positive Benedicts test in urine is :
 - a. Fatty acid
 - b. Folic acid
 - c. Amino acid
 - d. Ascorbic acid
13. Blood for glucose estimation is collected in which vial :
 - a. EDTA
 - b. Plain
 - c. Heparin
 - d. Fluoride
14. An enzyme acts by:
 - a. Decreasing the pH
 - b. Increasing the pH
 - c. Increasing the energy of activation
 - d. Decreasing the energy of activation

Regn. No.....

Paper Code: BM- 103...

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2016
MICROBIOLOGY (I)
PAPER THREE

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions
Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1.** Classify :
a. Culture media.
b. Gram positive bacteria
- Q. 2.** How will you collect, transport and process a blood sample in Microbiology Laboratory?
- Q. 3.** Write short notes on :
a. Autoclave
b. Universal work precautions
- Q. 4.** Write short notes on:
a. Bacterial cell wall.
b. Bacterial capsule
- Q. 5.** Define :
a. Sterilisation
b. Disinfection.
- Q. 6.** Enumerate three methods of Sterilisation and Disinfection each. Add a note on high level Disinfection.
- Q. 7.** Discuss:
a. ZN staining
b. Gram staining
- Q. 8.** Write short notes on:
a. Robert Koch
b. Albert staining
- Q. 9.** Write briefly on:
a. Differences between gram positive cell wall and gram negative cell wall
b. Pasteurization and incineration

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2016
MICROBIOLOGY (I)
PAPER THREE (MCQ)

Time allotted for MCQ- 15 minutes

B : MCQs (Single response type):

(½ x 14= 7)

Select the most appropriate answer and encircle the alphabet against it

1. All of the following are Gram Negative EXCEPT:
 - a. E.coli
 - b. Klebsiella
 - c. Corynebacterium
 - d. Pseudomonas
2. Gloves are discarded in:
 - a. Yellow bin
 - b. Blue bin
 - c. Green bin
 - d. Metal container
3. Sharp instruments are discarded in:
 - a. Yellow bin
 - b. Blue bin
 - c. Green bin
 - d. Metal container
4. Blood sample in bed side is inoculated in which media :
 - a. Brain heart infusion broth
 - b. Blood agar
 - c. MacConkey agar
 - d. Chocolate agar
5. In case of delay in processing which of the following sample is not refrigerated:
 - a. Blood
 - b. Urine
 - c. CSF
 - d. Pus
6. Bacterial loop is sterilized by:
 - a. Autoclaving
 - b. Hot air oven
 - c. Flaming till red hot
 - d. Phenol
7. Ideal temperature for bacterial culture in an incubator is:
 - a. 25 °C
 - b. 37 °C
 - c. 45 °C
 - d. 50 °C
8. The tuberculosis bacilli was discovered by:
 - a. Robert Koch
 - b. Louis Pasteur
 - c. Edward Jenner
 - d. Antony van Leeuwenhoek
9. All of the following are acid fast EXCEPT:
 - a. M. leprae
 - b. Staphylococcus
 - c. Nocardia
 - d. M. tuberculosis
10. The organ of locomotion of bacteria is:
 - a. Capsule
 - b. Slime
 - c. Flagella
 - d. Fimbriae
11. Vaccines can be best sterilized by :
 - a. Hot air oven
 - b. Autoclave
 - c. Filtration
 - d. Incinerator
12. The construction and use of compound microscope is attributed to:
 - a. Antony van leeuwenhoek
 - b. Louis Pasteur
 - c. Robert Koch
 - d. Joseph Lister
13. All of the following are Gram positive EXCEPT:
 - a. Staphylococcus
 - b. Bacillus anthracis
 - c. Corynebacterium
 - d. Pseudomonas
14. Holding time & temperature for Hot Air Oven is:
 - a. 121°C for 15 min.
 - b. 170 °C for 1hr.
 - c. 180 °C for 2 hrs
 - d. 160 °C for 1hr

Regn. No.....

Paper Code: BM- 104...

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2016

MICROBIOLOGY (II)

PAPER FOUR

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- | | | |
|--------------|---|---|
| Q. 1. | (i) Name two types of microscopes commonly used in diagnostic laboratories. | 2 |
| | (ii) Name the microscope that is used to demonstrate viruses. | 1 |
| | (iii) What is the resolution of a microscope? | 2 |
| | (iv) What is the advantage of using immersion oil with the 100x objective? | 2 |
| Q. 2. | (i) Name two different techniques of demonstrating antigen-antibody reactions. | 2 |
| | (ii) Name one pathogen commonly detected with each of these two techniques. | 2 |
| | (iii) Draw a labelled diagram of an IgG antibody molecule. | 3 |
| Q. 3. | (i) Mention two differences between a candle jar and a McIntosh-Fildes jar. | 4 |
| | (ii) Name one bacterium typically grown in a candle jar. | 1 |
| | (iii) Name two bacteria typically grown in a McIntosh-Fildes jar. | 2 |
| Q. 4. | (i) Draw a labelled diagram of an autoclave. | 2 |
| | (ii) Mention the physical principle of an autoclave | 3 |
| | (iii) Describe briefly the operating cycle of an autoclave. | 2 |
| Q. 5. | (i) What is a biological safety cabinet (BSC)? | 3 |
| | (ii) What are the three different classes of BSCs. | 3 |
| | (iii) What class of BSC would you prefer when working with Ebola virus? | 1 |
| Q. 6. | (i) Name four biochemical tests for identifying bacteria. | 4 |
| | (ii) Mention the principle of one of these tests. | 2 |
| | (iii) Name one non-biochemical identifying technique for bacteria. | 1 |
| Q. 7. | (i) Name three experimental animal species. | 3 |
| | (ii) Name three routes of inoculating experimental animals | 3 |
| | (iii) Name one pathogenic microbe that can be grown in experimental animals only. | 1 |
| Q. 8. | (i) What are vaccines? | 4 |
| | (ii) Name a killed-cell vaccine. | 1 |
| | (iii) Name a live-attenuated vaccine. | 1 |
| | (iv) Name a disease for which no vaccine has been discovered yet. | 1 |
| Q. 9. | (i) Name two items that are sterilized in a hot-air oven but not in an autoclave. | 2 |
| | (ii) Mention three effective temperature-time combinations in a hot-air oven. | 3 |
| | (iii) What precautions will you take to keep an item sterile after sterilization? | 2 |

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2016**MICROBIOLOGY (II)****PAPER FOUR (MCQ)****Time allotted for MCQ- 15 minutes****B : MCQs (Single response type):****(½ x 14= 7)**

Select the most appropriate answer and encircle the alphabet against it

1. A microscope objective that provides greater magnification has :
 - a. Smaller numerical aperture (N.A.)
 - b. Larger numerical aperture (N.A.)
 - c. No relation between magnification and numerical aperture
 - d. All of the above
2. A microscope should be stored in:
 - a. A humid place
 - b. A dry place
 - c. A wet place
 - d. Any kind of place
3. While using a centrifuge:
 - a. The centrifuge machine should be on a horizontal surface
 - b. Opposite tubes should be balanced
 - c. Speed should be increased slowly
 - d. All of the above
4. Bacteriological loops may be made of :
 - a. Nichrome
 - b. Platinum
 - c. Plastic
 - d. All of the above
5. Which of the following culture media is prepared in an inspissator?
 - a. Blood agar
 - b. Nutrient agar
 - c. Löwenstein-Jensen medium
 - d. Robertson's cooked meat broth
6. The maximum concentration of carbon dioxide obtained in a candle jar is:
 - a. 10%
 - b. 20%
 - c. 30%
 - d. 40%
7. An ELISA reader is based on:
 - a. Boyle's law
 - b. Beer-Lambert law
 - c. Newton's law
 - d. Ohm's law
8. Bacteria produced indole is produced from:
 - a. Lysine
 - b. Glutamine
 - c. Glycine
 - d. Tryptophan
9. The methyl red (MR) test detects the ability of bacteria to :
 - a. Produce alkali from glucose
 - b. Produce acid from glucose
 - c. Produce gas from glucose
 - d. Produce oxygen from glucose
10. Antibody is a component of :
 - a. Innate immunity
 - b. Adaptive immunity
 - c. Both of the above
 - d. None of the above
11. Vaccination depends on :
 - a. Active immunity
 - b. Passive immunity
 - c. Both of the above
 - d. None of the above
12. Agglutination is a reaction between:
 - a. Particulate antigen and soluble antibody
 - b. Soluble antigen and particulate antibody
 - c. Both of the above
 - d. None of the above
13. Which antibody isotype has five identical subunits linked together?
 - a. IgG
 - b. IgM
 - c. IgE
 - d. IgA
14. In ELISA, specific antibody is linked to:
 - a. Enzyme
 - b. Ruthenium
 - c. Fluorescein
 - d. Radioactive carbon

Regn. No.....

Paper Code: BM- 105... ✓

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2016
PATHOLOGY (I)
PAPER FIVE

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions
Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1.** Write briefly about various anticoagulants used in your laboratory, their mechanism of action and uses.
- Q. 2.** What is Erythrocyte sedimentation rate? Write about its methods of estimation.
- Q. 3.** How will you process urine for routine/microscopic examination?
- Q. 4.** How will you calculate total leukocyte count in a blood sample? What is its normal ranges?
- Q. 5.** What do you understand by absolute values? How will you calculate it in lab? Write briefly about its clinical importance in lab.
- Q. 6.** What is Romanowsky dye? Enumerate various Romanowsky dyes used in your hematology lab. Describe method of staining of any one.
- Q. 7.** Write short notes on :
a. Reticulocyte count
b. Microhematocrit
- Q. 8.** Draw labeled diagram of:
a. Normal Peripheral blood smear
b. Eosinophil and Basophil
- Q. 9.** Write briefly about :
a. Functions of Blood
b. Neubauer's Chamber

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2016
PATHOLOGY (I)
PAPER FIVE (MCQ)

Time allotted for MCQ- 15 minutes

(½ x 14= 7)

B : MCQs (Single response type):

Select the most appropriate answer and encircle the alphabet against it

1. In healthy person, 1 gram of hemoglobin carries oxygen:
 - a. 0.5ml
 - b. 1ml
 - c. 1.34ml
 - d. 3.14ml
2. During estimation of hemoglobin, out of the following which can cause errors:
 - a. Finger prick causing dilution
 - b. Method used for estimation
 - c. Calibration of pipettes
 - d. All of the above
3. The normal size for an Erythrocyte is
 - a. 2-3 micron
 - b. 3-6 micron
 - c. 6-8 micron
 - d. None of above.
4. During total leucocyte estimation, which of the following cells are not included:
 - a. Eosinophils
 - b. Macrophages
 - c. Lymphocytes
 - d. Monocytes
5. The number of nucleus in a healthy neutrophils vary from:
 - a. 2-3 lobes
 - b. 1-2 lobes
 - c. 2-5 lobes
 - d. 2-6 lobes
6. The number of lobes in nucleus of platelet are:
 - a. 2 lobes
 - b. 3 lobes
 - c. 5 lobes
 - d. No nucleus.
7. Out of which of the following do not effect the ESR values:
 - a. Temperature
 - b. Tilting of ESR tube
 - c. Bubbles during filling of blood in ESR tube
 - d. All of the above
8. Power House of Cell is:
 - a. Endoplasmic Reticulum
 - b. Mitochondria
 - c. Lysosomes
 - d. Nucleus
9. At the purchase of new Automated Instrument in laboratory which of the following needs to be assured of?
 - a. Accuracy
 - b. Precession
 - c. Both
 - d. None
10. Which of the following sample cannot be used for the estimation of Hemoglobin?
 - a. Haemolyzed
 - b. Clotted
 - c. Both can be used
 - d. None of the two
11. During the preparation of Blood Film, the spreader should ideally be kept in front of the blood drop at an angle of:
 - a. 20 degree
 - b. 30 degree
 - c. 60 degree
 - d. 110 degree
12. Sahli's method of Hemoglobin estimation is inaccurate because of:
 - a. Color of Acid Hematin develops slowly
 - b. Color of Acid Hematin fades immediately after it reaches peak
 - c. Both of the above
 - d. None of the above.
13. A binocular microscope haseye piece:
 - a. One
 - b. Two
 - c. Three
 - d. Four
14. Dilution factor used for TLC is:
 - a. 20
 - b. 30
 - c. 40
 - d. 50

Regn. No.....

Paper Code: BM- 106...

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2016
PATHOLOGY (II)
PAPER SIX

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

(7 x 9 = 63)

A : Short answer questions:

- Q. 1.** Name various tissue fixatives. What is the principle of fixation? How will you prepare formalin in the grossing room?
- Q. 2.** Discuss various steps in processing of tissues for histological examination.
- Q. 3.** What are various types of microtomes? Discuss in brief about their working principle and maintenance.
- Q. 4.** Write short notes on:
- a. Hematoloxilin and eosin staining.
 - b. Sharpening of microtome knife.
- Q. 5.** Discuss in brief the histology and disorders of liver.
- Q. 6.** What are various disorders in urinary system? Draw a labeled diagram of microscopic features of kidney.
- Q. 7.** What is decalcification? Discuss various methods used for decalcification
- Q. 8.** What is exfoliative cytology? Discuss its role in diagnosis of various diseases of FGT.
- Q. 9.** How will you collect, process and stain various cytological specimen?

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2016
PATHOLOGY (II)
PAPER SIX (MCQ)

Time allotted for MCQ- 15 minutes

B : MCQs (Single response type):

(½ x 14= 7)

Select the most appropriate answer and encircle the alphabet against it

1. Which compound is synthesized by liver?
 - a. Albumin
 - b. Globulins
 - c. Uric acid
 - d. Pepsin
2. Which organ is not part of cardiovascular system?
 - a. Heart
 - b. Lung
 - c. Aorta
 - d. Pulmonary veins
3. Power house of cell is?
 - a. Nucleus
 - b. Golgi bodies
 - c. Mitochondria
 - d. Ribosomes
4. Bone resorption is done by which cell?
 - a. Osteoblast
 - b. Osteoclast
 - c. Osteocyte
 - d. Chondroblast
5. Oxygen transport in blood is done by?
 - a. Plasma
 - b. White blood cell
 - c. Platelets
 - d. Red blood cell
6. Fluid surrounding lungs is?
 - a. Pleural fluid
 - b. Pericardial fluid
 - c. Ascitic fluid
 - d. CSF
7. Which vein carries oxygenated blood?
 - a. Portal vein
 - b. Pulmonary vein
 - c. Pulmonary artery
 - d. Cubital vein
8. Ribosomes are attached to which cell organelle?
 - a. Golgi body
 - b. Mitochondria
 - c. Nucleus
 - d. Endoplasmic reticulum
9. Acidic secretion is present in which part of alimentary tract?
 - a. Mouth
 - b. Stomach
 - c. Duodenum
 - d. Colon
10. Gas exchange occurs in which part of respiratory tract?
 - a. Naso pharynx
 - b. Trachea
 - c. Bronchi
 - d. Alveoli
11. Blood is supplied to liver by:
 - a. Pulmonary vein
 - b. Renal vein
 - c. Portal vein
 - d. Pulmonary artery
12. Ketone bodies in urine are detected by:
 - a. Benedicts test
 - b. Gerhardt test
 - c. Fouchet's test
 - d. Hay sulfur powder test
13. Functional unit of kidney is?
 - a. Neuron
 - b. Nephron
 - c. Medulla
 - d. Ureters
14. How many chambers are present in human heart?
 - a. One
 - b. Two
 - c. Three
 - d. Four

Regn. No.....

Paper Code: BMLT- 101...

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2017
BIOCHEMISTRY - I
PAPER FIRST

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. Draw a detailed representation of the Fluid Mosaic model of the cell membrane and label all the components of the membrane. (3.5+3.5=7 marks)
- Q. 2. Define carbohydrates and classify them giving one example of each class. Write at least two functions of carbohydrates in the human body. (1+4+2=7 marks)
- Q. 3. Name the proteins present in the plasma. Write a detailed note on the proteins present in the plasma. (3+4=7 marks)
- Q. 4. Write a detailed note on the various levels of structural organization of proteins. (7 marks)
- Q. 5. Name the purines and pyrimidines. What are nucleosides and nucleotides? Write some functions of nucleotides. (2+3+2=7 marks)
- Q. 6. Write the full forms of DNA and RNA. Enumerate the types of RNA. Draw a diagram of the Watson and Crick model of DNA. (2+3+2=7 marks)
- Q. 7. List the essential fatty acids. Why are they called "essential"? Draw the structure of any one of them. (3+1+3=7 marks)
- Q. 8. Describe the following: (3.5+3.5=7 marks)
- a. Saponification number
 - b. Iodine number
- Q. 9. What are polysaccharides? Give four examples. Describe the structure of starch. (2+2+3=7 marks)

Regn. No.....

Paper Code: BMLT- 101...

B.M.L.T. FIRST YEAR EXAMINATION, JUNE/JULY - 2017
BIOCHEMISTRY- I
PAPER FIRST (MCQ)

Time allotted for MCQ-15 minutes

B : MCQs (Single response type):

(½ x 14= 7)

Select the most appropriate answer and encircle the alphabet against it

1. All the following are composed of glucose except:
 - a. Amylose
 - b. Glycogen
 - c. Dextran
 - d. Inulin
2. Glucose and fructose are:
 - a. Anomers
 - b. Epimers
 - c. Aldo-keto isomers
 - d. Cis-trans isomers
3. The carbohydrate reserve in human body is:
 - a. Glucose
 - b. Glycogen
 - c. Cellulose
 - d. Starch
4. One of the following is not an essential fatty acid:
 - a. Linoleic acid
 - b. Linolenic acid
 - c. Arachidonic acid
 - d. Oleic acid
5. One of the following phospholipids has a role in producing second messengers:
 - a. Phosphatidyl choline
 - b. Phosphatidyl ethanolamine
 - c. Phosphatidyl inositol
 - d. Phosphatidyl serine
6. Respiratory distress syndrome in premature infants is caused due to deficiency of surfactant containing:
 - a. Cardiolipin
 - b. Plasmalogen
 - c. Cephalin
 - d. Lecithin
7. Glutathione is a:
 - a. Dipeptide
 - b. Tripeptide
 - c. Oligopeptide
 - d. Polypeptide
8. The human plasma proteins are a mixture of:
 - a. Glycoproteins
 - b. Simple proteins
 - c. Lipoproteins
 - d. All of the above
9. In denaturation the only bonds which are not destroyed are:
 - a. Peptide bonds
 - b. Hydrogen bonds
 - c. Van der Waals forces
 - d. Ionic bonds
10. On complete hydrolysis of DNA, we will get all the following except:
 - a. Thymine
 - b. Pentose sugar
 - c. Phosphoric acid
 - d. Deoxy-pentose sugar
11. In DNA uracil is replaced by:
 - a. Cytosine
 - b. Methyl cytosine
 - c. Thymine
 - d. Adenine
12. The two DNA strands are held together by:
 - a. Covalent bonds
 - b. Ionic interactions
 - c. Hydrogen bonds
 - d. Van der Waals forces
13. Extra nuclear DNA is found in the:
 - a. Ribosome
 - b. Endoplasmic reticulum
 - c. Lysosome
 - d. Mitochondria
14. The site of protein synthesis is the:
 - a. Nucleus
 - b. Ribosomes
 - c. Golgi body
 - d. Endoplasmic reticulum

B.Sc. MEDICAL TECHNOLOGY (LABORATORY) FIRST YEAR EXAMINATION
JUNE/JULY - 2017
BIOCHEMISTRY (II)
PAPER TWO

[Time allotted: Three hours]**[Max Marks: 70]****Note:** Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:**(7 x 9 = 63)**

- Q. 1.** Write short notes on: (3.5+3.5)
 a. The role and responsibilities of a MLT in the Biochemistry Laboratory
 b. Biomedical waste management
- Q. 2.** What is a buffer solution? Explain how the pH of blood is regulated by blood buffers when a moderate amount of an acid or an alkali is added to it. (3+4)
- Q. 3.** Write the principle and applications of: (3.5+3.5)
 a. Osmosis
 b. Dialysis
- Q. 4.** Define the terms: (3.5+3.5)
 a. Standard solution
 b. Percent solution
- Q. 5.** What is meant by K_m value of enzyme? Write its significance. (3+4)
- Q. 6.** Differentiate between: (3.5+3.5)
 a. Surface tension and viscosity
 b. Coenzyme and co-factor
- Q. 7.** Define enzyme. Discuss the mechanism of enzyme action. (2+5)
- Q. 8.** Define pH. What is the normal range of blood pH? Write the Henderson-Hasselbach equation and comment on its utility. (2+1+2+2)
- Q. 9.** Write the classification of enzymes with two examples from each class. (7)

Regn. No.....

Paper Code: BMLT- 102...

B.Sc. MEDICAL TECHNOLOGY (LABORATORY) FIRST YEAR EXAMINATION
JUNE/JULY - 2017
BIOCHEMISTRY (II)
PAPER TWO (MCQ)

Time allotted for MCQ- 15 minutes

(½ x 14= 7)

B : MCQs (Single response type):

Select the most appropriate answer and encircle the alphabet against it

1. A 2% salt solution is _____ as compared to a 4% salt solution.:
 - a. Hypertonic
 - b. Hypotonic
 - c. Isometric
 - d. Isotonic
2. Which of the following is actively transported across plasma membranes?
 - a. Carbon dioxide
 - b. Oxygen
 - c. Water
 - d. Sodium ions
3. What is the outer boundary of the eukaryotic cell?
 - a. Cell wall
 - b. Plasma membrane
 - c. Nuclear membrane
 - d. Nucleolus
4. _____ is the net movement of any type of molecule from a region of higher concentration to lower concentration.:
 - a. Osmosis
 - b. Diffusion
 - c. Active transport
 - d. Pinocytosis
5. Crystals of dye when placed in a beaker of water eventually spread throughout the water, is an example of:
 - a. Diffusion
 - b. Osmosis
 - c. Active transport
 - d. Pinocytosis
6. Water passes into and out of cells through the:
 - a. Phospholipid bilayer
 - b. Water carrier proteins
 - c. Water receptor proteins
 - d. Cell-recognition proteins
7. A 10% sugar solution will contain:
 - a. 0.10 grams of sugar in 100 ml water
 - b. 1 gram of sugar in 100 ml water
 - c. 10 grams of sugar in 100 ml water
 - d. 10 grams of sugar in 1000 ml water
8. Which type of solution will cause cells to shrink or to shrivel?
 - a. Isotonic
 - b. Hypotonic
 - c. Hypertonic
 - d. Hygrotonic
9. Enzymes having slightly different molecular structures but performing identical activity are:
 - a. Holoenzymes
 - b. Apoenzymes
 - c. Isoenzymes
 - d. Coenzymes
10. The catalytic efficiency of two different enzymes can be compared by the:
 - a. Formation of the product
 - b. Km value
 - c. Molecular size of the enzymes
 - d. pH of optimum value
11. Lock and key theory of enzyme action was proposed by:
 - a. Fischer
 - b. Koshland
 - c. Kuhne
 - d. Arrhenius
12. Enzymes generally have:
 - a. Same pH and temperature optima
 - b. Same pH and different temperature optima
 - c. Different pH but same temperature
 - d. Different pH and temperature optima
13. Enzymes consist of chains of:
 - a. Fatty acids
 - b. Nucleotides
 - c. Amino acids
 - d. Carbohydrates
14. In enzyme kinetics, Vmax reflects:
 - a. The amount of an active enzyme
 - b. Substrate concentration
 - c. Half the substrate concentration
 - d. Enzyme substrate complex

Regn. No.....

Paper Code: BMLT - 103...

**B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
FIRST YEAR EXAMINATION, JUNE/JULY - 2017
MICROBIOLOGY (I)**

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. Define sterilisation and disinfection. What are the various methods of sterilisation? Write down the time, temperature and pressure used in an autoclave.
- Q. 2. Write down the differences between gram positive cell wall and gram negative cell wall with diagram.
- Q. 3. Write short notes on :
a. Biomedical waste management.
b. Universal work precautions
- Q. 4. Write short notes on:
a. Bacterial flagella.
b. Bacterial spore
- Q. 5. Write briefly on bacterial growth curve with diagram.
- Q. 6. Classify culture media for isolation of bacteria.
- Q. 7. Discuss anaerobic culture methods.
- Q. 8. Write short notes on:
a. Gram staining
b. Albert staining
- Q. 9. Write briefly on processing of a urine sample for culture.

B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
FIRST YEAR EXAMINATION, JUNE/JULY - 2017
MICROBIOLOGY (I)
(MCQ)

Time allotted for MCQ - 15 minutes

B : MCQs (Single response type):

(½ x 14= 7)

Select the most appropriate answer and encircle the alphabet against it

1. The techniques of sterilisation were introduced by:
 - a. Robert Koch
 - b. Louis Pasteur
 - c. Edward Jenner
 - d. Antony van Leeuwenhoek
2. The tuberculosis bacilli was discovered by:
 - a. Robert Koch
 - b. Louis Pasteur
 - c. Edward Jenner
 - d. Antony van Leeuwenhoek
3. Gloves are discarded in:
 - a. Yellow bin
 - b. Blue bin
 - c. Green bin
 - d. Metal container
4. Sharp instruments are discarded in:
 - a. Yellow bin
 - b. Blue bin
 - c. Green bin
 - d. Metal container
5. Blood sample in bed side is inoculated in which media?
 - a. Brain heart infusion broth
 - b. Blood agar
 - c. MacConkey agar
 - d. Chocolate agar
6. In case of delay in processing which of the following sample is not refrigerated:
 - a. Blood
 - b. Urine
 - c. CSF
 - d. Pus
7. Purpose of using biosafety cabinet for processing a sample is:
 - a. To prevent contamination
 - b. To prevent infection
 - c. Both (a) & (b)
 - d. To do PCR
8. The organ of adhesion of bacteria is:
 - a. Capsule
 - b. Slime
 - c. Flagella
 - d. Fimbriae
9. All of the following are Gram Negative except:
 - a. *E. coli*
 - b. *Klebsiella*
 - c. *Corynebacterium*
 - d. *Pseudomonas*
10. All of the following are acid fast except:
 - a. *M. leprae*
 - b. *Staphylococcus*
 - c. *Nocardia*
 - d. *M. tuberculosis*
11. The organ of locomotion of bacteria is:
 - a. Capsule
 - b. Slime
 - c. Flagella
 - d. Fimbriae
12. The construction and use of compound microscope is attributed to:
 - a. Antony van Leeuwenhoek
 - b. Louis Pasteur
 - c. Robert Koch
 - d. Joseph Lister
13. All of the following are Gram positive except:
 - a. *Staphylococcus*
 - b. *Bacillus anthracis*
 - c. *Corynebacterium*
 - d. *Pseudomonas*
14. The most reliable and widely used anaerobic jar is:
 - a. Candle jar
 - b. Inpissator
 - c. McIntosh-Fildes jar
 - d. Incubator

Regn. No.....

Paper Code: BMLT- 104...

**B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
FIRST YEAR EXAMINATION, JUNE/JULY - 2017
MICROBIOLOGY (II)**

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. Write short notes on:
- HEPA filters
 - Biosafety cabinets
- Q. 2. Define:
- Type 1 hypersensitivity
 - Agglutination reaction
- Q. 3. Discuss:
- Types of ELISA
 - Electron microscope
- Q. 4. Write short notes on:
- Catalase test
 - Coagulase test
- Q. 5. Write short notes on:
- Flocculation reaction
 - Water bath
- Q. 6. Write briefly on:
- Compound microscope
 - Turbidometer
- Q. 7. Write on:
- Care and handling of experimental animals
 - Nephelometer
- Q. 8. Write on:
- Complement fixation test
 - Antigen
- Q. 9. Write on live vaccines giving suitable examples

Regn. No.....

Paper Code: BMLT- 104...

B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
FIRST YEAR EXAMINATION, JUNE/JULY - 2017
MICROBIOLOGY (II)
(MCQ)

Time allotted for MCQ - 15 minutes

(½ x 14= 7)

B : MCQs (Single response type):

Select the most appropriate answer and encircle the alphabet against it

1. OT gowns are sterilized by:
 - a. Autoclaving
 - b. Hot air oven
 - c. Flaming till red hot
 - d. Phenol
2. Ideal temperature for bacterial culture in an incubator is:
 - a. 25 °C
 - b. 37 °C
 - c. 45 °C
 - d. 50 °C
3. Which is the heaviest antibody?
 - a. IgM
 - b. IgG
 - c. IgA
 - d. IgE
4. Which antibody is present in secretions?
 - a. IgM
 - b. IgG
 - c. IgA
 - d. IgE
5. Which of the following bacteria is coagulase negative?
 - a. *Staphylococcus saprophyticus*
 - b. *Pneumococcus*
 - c. *E. coli*
 - d. *Klebsiella*
6. Which of the following bacteria is indole positive?
 - a. *Staphylococcus aureus*
 - b. *Pneumococcus*
 - c. *E. coli*
 - d. *Klebsiella*
7. Which of the following bacteria is citrate positive?
 - a. *Staphylococcus aureus*
 - b. *Pneumococcus*
 - c. *Citrobacter*
 - d. *Streptococcus pyogenes*
8. Tube widal test is which type of antigen antibody reaction?
 - a. Precipitation
 - b. Agglutination
 - c. ELISA
 - d. Neutralization
9. All of the following bacteria are oxidase negative except:
 - a. *E. coli*
 - b. *Klebsiella*
 - c. *Salmonella*
 - d. *Pseudomonas*
10. Cell mediated reactions are which type of hypersensitivity reactions:
 - a. I
 - b. II
 - c. III
 - d. IV
11. Delayed hypersensitivity is mediated by:
 - a. T lymphocytes
 - b. B lymphocytes
 - c. Killer cells
 - d. Natural killer cells
12. Father of antiseptic surgery:
 - a. Antony van Leeuwenhoek
 - b. Louis Pasteur
 - c. Robert Koch
 - d. Joseph Lister
13. All of the following are PPA positive except:
 - a. *Proteus*
 - b. *Providencia*
 - c. *Morgenella*
 - d. *Citrobacter*
14. Discoverer of microscope:
 - a. Antony van Leeuwenhoek
 - b. Louis Pasteur
 - c. Robert Koch
 - d. Joseph Lister

Regn. No.....

Paper Code: BMLT- 105...

**B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
FIRST YEAR EXAMINATION, JUNE/JULY - 2017
PATHOLOGY (I)**

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1.** Enumerate various anticoagulants added to blood samples in laboratory. Describe mechanism of action of each.
- Q. 2.** Write the sequential steps for drawing the blood sample during phlebotomy.
- Q. 3.** Define the erythrocyte sedimentation rate. Enumerate the factors which influence the results.
- Q. 4.** Draw labelled diagram of the following:
a. Monocyte
b. Eosinophil
- Q. 5.** Write the haemocytometric method for estimation of leucocytes count (TLC). What could be errors associated with the same?
- Q. 6.** Define Hematocrit. Describe various methods used to measure the same.
- Q. 7.** Write in brief about the steps taken in our laboratory in the pre analytical area for obtaining quality samples.
- Q. 8.** List the various methods for estimation of hemoglobin in laboratory. What is the principle behind the Sahli's method of estimation of hemoglobin?
- Q. 9.** Write short notes on :
a. Write the order of draw for the following samples for, hemoglobin, serum calcium, ESR, blood culture in your lab.
b. How will you manage blood spillage in your lab?

B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
FIRST YEAR EXAMINATION, JUNE/JULY - 2017
PATHOLOGY (I)
(MCQ)

Time allotted for MCQ - 15 minutes

B : MCQs (Single response type):

(½ x 14 = 7)

Select the most appropriate answer and encircle the alphabet against it

1. In healthy (adult) male person, hemoglobin level:
 - a. 12-14 gm /dl
 - b. 13-16 gm/dl
 - c. 11-14 gm /dl
 - d. 12-22 gm/dl
2. Best method of hemoglobin estimation is:
 - a. Sahli's
 - b. Cynmethemoglobin
 - c. Hemocue
 - d. Carboxyhemoglobin
3. The average life of an erythrocyte is:
 - a. 60 days
 - b. 120 days
 - c. 30 days
 - d. 150 days.
4. The total leucocyte count in a healthy male:
 - a. 4 K- 8K/mm³
 - b. 4 K- 11K/mm³
 - c. 14 K- 18K/mm³
 - d. 40 K- 80K/mm³
5. Stain used for reticulocyte count:
 - a. BCB
 - b. New methylene blue
 - c. Both
 - d. None
6. Staining fluid for TLC is:
 - a. Hym's fluid
 - b. Turk's Fluid
 - c. Formic Acid
 - d. None of them
7. Out of which of the following ESR values will be highest:
 - a. CML
 - b. Multiple myeloma
 - c. Hemolytic anemia
 - d. Rheumatoid arthritis
8. Eosinophilia seen in:
 - a. Asthma
 - b. Parasitic infections
 - c. Allergic disorders
 - d. All of them
9. Hyper segmented polymorphs have:
 - a. 2 Lobes
 - b. 4 Lobes
 - c. 5 Lobes
 - d. 6 and more lobes
10. The depth of Neubauer's chamber is:
 - a. 0.5mm
 - b. 0.3mm
 - c. 0.1mm
 - d. 0.7mm
11. Romanowsky stain is:
 - a. Hematoxylline
 - b. Giemsa
 - c. New methylene blue
 - d. Papanicolaue
12. Microscope optics should be cleaned with:
 - a. Xylene
 - b. Alcohol
 - c. Ether and acetone
 - d. Methyl alcohol
13. Dilution factor used for RBC count in Neubauer's chamber is.....times.
 - a. 200
 - b. 300
 - c. 400
 - d. 500
14. Normal value of PCV in adult male is :
 - a. 45%
 - b. 55%
 - c. 35%
 - d. 25%

Regn. No.....

Paper Code: BMLT- 106...

**B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
FIRST YEAR EXAMINATION, JUNE/JULY - 2017
PATHOLOGY (II)**

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions
Draw suitable diagrams wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1.** What all cytological specimen are received commonly in cytology laboratories? What is the advantage of using Cytospin over routine Centrifuge machine in cytology laboratory?
- Q. 2.** What is the function of mordants and accelerators in histopathology laboratory?
- Q. 3.** List all the chemicals used during processing step in the histopathology. What is the significance of each in the process?
- Q. 4.** Name various types of connective tissues? What is the function of various types of connective tissues?
- Q. 5.** What all organs together constitute female genital tract? Draw a labeled diagram of sperm.
- Q. 6.** Draw labeled diagram of the following:
a. Cell
b. Pseudo stratified columnar epithelium
- Q. 7.** Draw labeled diagram of :
a. Histology of liver
b. Histological section of skin
- Q. 8.** Describe the sequential steps of processing of the tissues in histopathology. Draw a labeled diagram.
- Q. 9.** What is the significance of control sections staining during special stains in histopathology?

B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
FIRST YEAR EXAMINATION, JUNE/JULY - 2017
PATHOLOGY (II)
(MCQ)

Time allotted for MCQ - 15 minutes

B : MCQs (Single response type):

(½ x 14= 7)

Select the most appropriate answer and encircle the alphabet against it

1. Which of the following organ is lined by stratified squamous epithelium?
 - a. Skin
 - b. Cornea
 - c. Oral Cavity
 - d. All of the above.
2. One of the following is not a connective tissue:
 - a. Compact bone
 - b. Hyaline cartilage
 - c. Fibrous cartilage
 - d. All of the above are connective tissue
3. Which of the following are normal components of skin?
 - a. Hair follicle
 - b. Sebaceous cysts
 - c. Sweat glands
 - d. All of the above
4. Anatomical parts of stomach includes:
 - a. Cardiac region
 - b. Fundus region
 - c. Pyloric region
 - d. All of the above
5. Which of the following is not a component of portal tract?
 - a. Central vein
 - b. Bile duct
 - c. Hepatic artery branch
 - d. Portal vein branch.
6. Routine fixative of choice in histopathology :
 - a. Formalin
 - b. 50% Formalin
 - c. 10% Formalin
 - d. 10% Saline
7. The manual method of sharpening the knife is/are:
 - a. Horning
 - b. Stropping
 - c. Both of the above
 - d. None of the above
8. Which of the following statement is false?
 - a. During the processing, alcohol jar contains increasing order of alcohol percentage.
 - b. Xylene gets dissolved in alcohol and wax.
 - c. Ideal section thickness in histopathology varies between 1mm to 2mm.
 - d. All statements above are true.
9. Mordant
 - a. Helps the dye to retain in tissues during subsequent washing of section.
 - b. Alum is used most commonly with hematoxylin.
 - c. Both of the above statements are false.
 - d. Both of the above statement are true
10. In routine H&E stained section, the nucleus is stained by:
 - a. Haematoxylin
 - b. Eosin
 - c. Both
 - d. None of the two above
11. Which of the following organ is not lined by stratified squamous epithelium?
 - a. Skin
 - b. Cornea
 - c. Oral cavity
 - d. Stomach
12. One of the following is not a connective tissue:
 - a. Compact bone
 - b. Hyaline cartilage
 - c. Fibrous cartilage
 - d. All of the above are connective tissue
13. Which of the following are normal components of skin?
 - a. Hair Follicle
 - b. Sebaceous cysts
 - c. Sweat glands
 - d. All of the above
14. Anatomical parts of stomach includes:
 - a. Cardiac region
 - b. Fundus region
 - c. Pyloric region
 - d. All of the above

Regn. No.....

Paper Code: BMLT- 106...

B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
FIRST YEAR EXAMINATION, JUNE/JULY - 2017
PATHOLOGY (II)
(MCQ)

B : MCQs (Single response type):

(½ x 14= 7)

Select the most appropriate answer and encircle the alphabet against it

11. Which cell organelle is also called as power house of the cell?
 - a. Nucleus
 - b. Plasma membrane
 - c. Golgi body
 - d. Mitochondria
12. The temperature of water bath at time of microtomy should be:
 - a. 10 °C
 - b. 37 °C
 - c. 60 °C
 - d. 100 °C
13. Surface decalcification is done by:
 - a. Absolute alcohol
 - b. 5% HCl
 - c. Normal saline
 - d. Microwave
14. Underfixation of histopathology tissue causes:
 - a. Necrosis
 - b. Apoptosis
 - c. Autolysis
 - d. Gangrene

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10/7/17
COE, SRHU