

B.M.L.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2013
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.** Define glycolysis. Write the steps of glycolytic pathway.
- Q. 2.** Write the steps of TCA cycle with its regulation. What do you understand by amphibolic nature of TCA cycle?
- Q. 3.** Write the biomedical importance of hexose monophosphate shunt and the steps of HMP shunt.
- Q. 4.** **a.** How would you prepare a patient for glucose tolerance test?
b. How is the blood glucose level regulated?
- Q. 5.** What is normal level of total cholesterol in serum? How is it regulated in blood?
- Q. 6.** Describe urea cycle and write the clinical significance of blood urea levels.
- Q. 7.** Describe source, requirement and deficiency diseases of vitamin A.
- Q. 8.** What are lipoproteins? Write a note on general structure of a lipoprotein molecule.
- Q. 9.** How would you prepare a patient for lipid profile test? Write the normal levels and formulas for calculations of lipid profile parameters.

B.M.L.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2013**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. The enzymes of citric acid cycle are located in:
 - a. Peroxisome
 - b. Cytoplasm
 - c. Endoplasmic reticulum
 - d. Mitochondria
2. Following is a primary ketone body:
 - a. Acetone
 - b. β - hydroxybutyrate
 - c. Acetoacetate
 - d. Butyric acid
3. Which of the following vitamin is fat soluble?
 - a. Vitamin C
 - b. Thiamine
 - c. Vitamin D
 - d. Vitamin B₁₂
4. Yellow pigmented fruits and vegetables are rich sources of:
 - a. β - carotenes
 - b. vitamin A
 - c. vitamin E
 - d. vitamin K
5. What is the normal range of fasting blood sugar in mg/dl?
 - a. 70 – 100
 - b. 80 – 140
 - c. 70 – 120
 - d. 60 – 130
6. In which vacutainer a sample for estimation of HbA_{1C} is taken:
 - a. Red cap
 - b. Grey cap
 - c. Yellow cap
 - d. Purple cap
7. The net ATP generated by complete oxidation of 1 molecule of palmitic acid is:
 - a. 128
 - b. 131
 - c. 129
 - d. 127
8. If TG level is 392 mg/dl, total cholesterol 210 mg/dl, the calculated level of VLDL in serum is:
 - a. 196 mg/dl
 - b. 200 mg/dl
 - c. 250 mg/dl
 - d. 300 mg/dl
9. During complete oxidation, what is the net yield of ATP from one glucose molecule?
 - a. 38
 - b. 8
 - c. 112
 - d. 12
10. What is bad cholesterol?
 - a. LDL
 - b. VLDL
 - c. HDL
 - d. TG
11. What is the normal urinary excretion of urea in mg/day?
 - a. 15 – 30
 - b. 30 – 45
 - c. 45 – 65
 - d. 65 – 85
12. Which vitamin acts as a pro-hormone?
 - a. D
 - b. C
 - c. K
 - d. E
13. Pellagra is seen in deficiency of which vitamin?
 - a. Niacin
 - b. Thiamine
 - c. D
 - d. E
14. Water soluble vitamin, which is stored in the body is?
 - a. Vitamin B₁₂
 - b. Niacin
 - c. Vitamin C
 - d. Vitamin B₁

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

[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.** a. State Beer's and Lambert's law. (2)
b. What is the principle and clinical applications of spectrophotometer? (5)
- Q. 2.** a. Give the principle and applications of thin layer chromatography. (3)
b. What is HPLC? Name one analyte estimated in your lab based on this technique. (4)
- Q. 3.** When estimating a sample of glucose in serum by O- toluidine method, green colour is seen. At which filter you would take the readings. What is the basis of choosing that filter? (7)
- Q. 4.** Describe the basic principle and applications of turbidimetry. (7)
- Q. 5.** Differentiate between: (3.5+3.5= 7)
a. Dry and liquid chemistry analyzer
b. Continuous flow analyzer and discrete analyser
- Q. 6.** What is automation? What are the advantages of automation in clinical biochemistry lab? (7)
- Q. 7.** Write the principle and clinical application of polyacryl amide gel electrophoresis? (7)
- Q. 8.** What is the principle of blood gas analyzer? How will you analyse sodium by flame emission flame photometer? (8)
- Q. 9.** a. Outline the steps in sample processing. (3)
b. Describe how sample processing may be adapted to semi-auto analyzer. (4)

B.M.L.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2013**BIOCHEMISTRY (II)****PAPER TWO (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 part of the spectrophotometer is adjusted to select the desired wave length?
 - a. Light source
 - b. Filter
 - c. Sample
 - d. Photodetector
2. A blank contains the ----- but not the dissolved chemical:
 - a. Solvent
 - b. Solute
 - c. Filter
 - d. Absorption spectrum
3. Study of movement of charged particles in an electric field is called:
 - a. Electrophoresis
 - b. Spectroscopy
 - c. Cell fractionation
 - d. Chromatography
4. Chromatographic separations are based on:
 - a. Polarity
 - b. Density
 - c. Wavelength
 - d. Distribution coefficient
5. RF (Relative Fraction) value is:
 - a. Distance traveled by substance/distance traveled by solvent
 - b. Distance traveled by solvent/distance traveled by substance
 - c. Distance traveled by solvent X distance traveled by substance
 - d. Distance traveled by solvent + distance traveled by substance
6. Turbidity is measured at which angle from the incident light:
 - a. 45^0
 - b. 90^0
 - c. 180^0
 - d. 120^0
7. Nephelometry can measure at which angle from the incident light:
 - a. 30^0
 - b. 60^0
 - c. 90^0
 - d. 120^0
8. The hollow cathode lamp is filled with:
 - a. Oxygen gas
 - b. Mixture of gases
 - c. Inert gas like argon at low pressure
 - d. No gas, vacuum is present
9. What is the quickest method for separation of proteins?
 - a. HPLC
 - b. TLC
 - c. PAGE
 - d. All of the above
10. What is the path of light through a spectrophotometer?
 - a. Meter, photodetector, filter, sample, light, source
 - b. Meter, filter, sample, photodetector, light source
 - c. Light source, filter, sample, photodetector, meter
 - d. Light source, sample, filter, photodetector, meter
11. The visible portion of the electro magnetic spectrum occurs between----- nm and -----nm:
 - a. 1, 10
 - b. 10, 300
 - c. 400, 700
 - d. 800, 1200
12. Not found in flame photometry:
 - a. Burner
 - b. Filter
 - c. Fuel source
 - d. Cuvete for sample
13. Electrophoresis is used to:
 - a. Separate DNA fragments
 - b. Identify DNA fragments
 - c. Purify DNA fragments
 - d. Both a and c
14. Nephelometry is:
 - a. Lambert- Beer law
 - b. Scattering of light by particulate solution
 - c. Defraction of light
 - d. Decreased intensity of light

B.M.L.T. SECOND 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.** Name four acid fast organisms. What is the causative agent of tuberculosis? Discuss the morphology and cultural characteristic of the organism.
- Q. 2.** Discuss the laboratory diagnosis of enteric fever.
- Q. 3.** Enumerate the causative agents of sore throat. Draw and label the antigenic structure of *Streptococcus pyogenes*.
- Q. 4.** Write short notes on: (4+3=7)
a. Nagler reaction
b. Coagulase test
- Q. 5.** Tabulate the differences between: (4+3=7)
a. *Streptococcus pneumoniae* and *Streptococcus viridans*
b. *E. coli* and *Klebsiella*
- Q. 6.** Discuss various culture media used for isolation of *Corynebacterium diphtheriae*.
- Q. 7.** Draw and label: (4+3=7)
a. Gram positive cell wall
b. Satellitism of *H. influenzae* in blood agar.
- Q. 8.** Enumerate only: (3+2+2=7)
a. Name the *Escherichia coli* groups causing diarrhoea.
b. Culture media for *Vibrio cholerae*.
c. Two motile bacteria.
- Q. 9.** Write short notes on: (4+3=7)
a. Widal test
b. Elek's gel precipitation test

B.M.L.T. SECOND 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. Darting motility is seen in:
 - a. Proteus
 - b. E.coli
 - c. Vibrio
 - d. Salmonella
2. Q fever is caused by:
 - a. R.prowazekii
 - b. R.quintana
 - c. R.akari
 - d. C.burnetti
3. Which of the following bacteria is catalase positive:
 - a. Staphylococcus aureus
 - b. Streptococcus pyogenes
 - c. Enterococcus
 - d. Pneumococcus
4. Epidemic typhus is caused by:
 - a. R. prowazekii
 - b. R. quintana
 - c. R. akari
 - d. C. burnetti
5. Stalactite growth is a feature of-
 - a. Hemophilus
 - b. Yersinia
 - c. Bordetella
 - d. Brucella
6. BCG vaccine is a:
 - a. Live attenuated preparation
 - b. Killed preparation
 - c. Toxoid preparation
 - d. Recombinant preparation
7. Satellitism is a feature of :
 - a. Hemophilus
 - b. Yersinia
 - c. Bordetella
 - d. Brucella
8. Chlamydia causes all of the following EXCEPT :
 - a. Trachoma
 - b. Non-gonococcal urethritis
 - c. Pneumonia
 - d. Parotitis
9. Which of the following bacteria is acid fast?
 - a. E. coli
 - b. Salmonella
 - c. Mycobacterium tuberculosis
 - d. Vibrio
10. Causative organism of syphilis is :
 - a. Mycoplasma
 - b. Salmonella
 - c. Mycobacterium tuberculosis
 - d. Treponema pallidum
11. The Widal test is a type of:
 - a. Precipitation reaction
 - b. Agglutination reaction
 - c. Complement fixation test
 - d. Immunofluorescence
12. Trachoma is caused by which serovar of Chlamydia:
 - a. A,B,Ba C
 - b. D-K
 - c. L1-L3
 - d. all of the above
13. Oxidase positive bacteria is:
 - a. Streptococcus pyogenes
 - b. Staphylococcus aureus
 - c. Pseudomonas aeruginosa
 - d. Pneumococcus
14. Which of the following is a Gram negative bacilli ?
 - a. Mycobacterium tuberculosis
 - b. Escherichia coli
 - c. Streptococcus
 - d. Staphylococcus

B.M.L.T. SECOND 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.** What are the modes of transmission of HIV? Write briefly on post exposure prophylaxis of HIV. 7
- Q. 2.** Name hepatitis viruses. Write a short note on hepatitis A virus. 3+4=7
- Q. 3.** Name the arboviruses prevalent in India. Write a short note on Chikungunya virus. 3+4=7
- Q. 4.** Classify herpes viruses. Name the diseases caused by the Herpes simplex virus. Name two clinical manifestations which may result from Epstein-Barr virus infection. 3+2+2=7
- Q. 5.** Write short notes on- 3.5+3.5=7
- a. Rabies vaccines
 - b. Polio vaccines
- Q. 6.** Classify fungi .Name one media used for growing fungi along with its constituents . 3+1+3=7
- Q. 7.** Name different species of aspergillus. What are the diseases caused by aspergillus? Which species of aspergillus gives black coloured colony when cultured on SDA media? 3+3+1=7
- Q. 8.** Enumerate only: 3+3+1=7
- a. Dimorphic fungi.
 - b. Species of Candida
 - c. One capsulated yeast
- Q. 9.** Write short notes on- 3.5+3.5=7
- a. KOH mount for fungus
 - b. Lactophenol cotton blue.

B.M.L.T. SECOND 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. Segmented RNA is seen in :
 - a. Rabies virus
 - b. Polio virus
 - c. Influenza virus
 - d. Herpes virus
2. Negri bodies are seen in the following viral infection:
 - a. Rabies
 - b. Polio
 - c. Influenza
 - d. Herpes
3. An example of artificial virus is :
 - a. Rabies virus
 - b. Polio virus
 - c. Influenza virus
 - d. Vaccinia virus
4. The virus responsible for avian influenza is :
 - a. H2N1
 - b. H2N2
 - c. H3N1
 - d. H5N1
5. The symmetry of pox virus is :
 - a. Helical
 - b. Complex
 - c. Tubular
 - d. None of the above
6. Which of the following dermatophytes can infect hair, skin and nail?
 - a. Trichophyton
 - b. Microsporum
 - c. Epidermophyton
 - d. None of the above
7. What is the shape of the rabies virus?
 - a. Spherical
 - b. Polygonal
 - c. Bullet shaped
 - d. Tubular
8. All of the following hepatitis viruses are RNA viruses EXCEPT :
 - a. Hepatitis A virus
 - b. Hepatitis B virus
 - c. Hepatitis E virus
 - d. Hepatitis G virus
9. Which of the following stain is used for Cryptococcus:
 - a. Negative India ink
 - b. Albert
 - c. Ziehl Nelsen stain
 - d. None of the above
10. Which of the following dermatophytes can infect only skin and hair?
 - a. Trichophyton
 - b. Microsporum
 - c. Epidermophyton
 - d. None of the above
11. pH of SDA media is
 - a. 5.4
 - b. 6.4
 - c. 7.4
 - d. 8.4
12. Which of the following fungi is not a mold?
 - a. Aspergillus
 - b. Penicillium
 - c. Mucor
 - d. Cryptococcus
13. Asexual spores of fungi following EXCEPT:
 - a. Arthrospores
 - b. Chlamydospores
 - c. Blastospores
 - d. Ascospores
14. Which of the following species of Candida is most frequently associated with human infections?
 - a. C. albicans
 - b. C. tropicalis
 - c. C. glabrata
 - d. C. krusei

B.M.L.T. SECOND 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.** Differentiate between major and minor cross match.
- Q. 2.** Differentiate between intrinsic and extrinsic pathway of coagulation.
- Q. 3.** Write short notes on LE cell preparation.
- Q. 4.** Write short notes on prothrombin time.
- Q. 5.** Write short notes on types of Hemoglobin.
- Q. 6.** Write short notes on fresh frozen plasma.
- Q. 7.** Write the steps and importance of PAS stain.
- Q. 8.** Write the steps and importance of Papani color stain.
- Q. 9.** Write the steps and importance of Coomb's test.

B.M.L.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2013**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. Lymphocytes in the blood:
 - a. Are included in the category of 'granulocytes'
 - b. Can produce fibrinogen
 - c. Constitute about 25% of all leucocytes
 - d. Have lobulated nuclei
2. Size of red blood cells is:
 - a. 7 – 8 µm
 - b. 12 µm
 - c. 4 – 5 µm
 - d. 12 – 15 µm
3. What is true about platelets?
 - a. Small nuclei
 - b. Develop in spleen
 - c. Develop from monocytes
 - d. Normal value is 1.5 – 2.5 lakh/mm³
4. True about megakaryocytes:
 - a. Large multilobed nucleus
 - b. Gives rise to platelets
 - c. Found in bone marrow
 - d. All of the above
5. Bleeding may be caused by:
 - a. Decrease in the number of platelets
 - b. Decrease in the number of leucocyte
 - c. Decrease in the number of RBCs
 - d. None of the above
6. Bone marrow in adult humans is a major organ for proliferation of cells maturing into:
 - a. Lymphocytes
 - b. Plasma cells
 - c. Red blood cells
 - d. All of the above
7. In adults, erythrocytes develop in:
 - a. Peripheral blood
 - b. Red bone marrow
 - c. Spleen
 - d. Liver
8. A person with type AB blood would have ---- antigen on red blood cells and -----
 - a. A and B; neither anti A nor anti B
 - b. Neither A nor B; both anti A and anti B
 - c. B; anti A
 - d. A; anti B
9. Which cell gives rise to all other blood cells?
 - a. Bone cell
 - b. Stem cell
 - c. Lymphocyte
 - d. Megakaryocyte
10. What is the metal in the center of the hemoglobin molecule?
 - a. Lead
 - b. Calcium
 - c. Magnesium
 - d. Iron
11. Which disease is caused by abnormal HbS?
 - a. Fetal anemia
 - b. Sickle cell anemia
 - c. Hemophilia
 - d. Leukemia
12. A person with blood type AB can receive blood from which of the following type:
 - a. A
 - b. O
 - c. B
 - d. Any of the above
13. Periodic acid Schiff (PAS) stain is positive with:
 - a. Mucopolysaccharides
 - b. Basement membrane material
 - c. Glycogen
 - d. All of the above
14. Shelf life of fresh frozen plasma is:
 - a. 1 day
 - b. 5 days
 - c. 30 days
 - d. 1 year

B.M.L.T. SECOND 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)

Write short notes on:

- Q. 1.** Structure and main functions of Layers of skin.
- Q. 2.** Structure and main functions of Neuron.
- Q. 3.** Structure and main functions of Parts of Urinary system.
- Q. 4.** Metachromasia.
- Q. 5.** Phase contrast microscope.
- Q. 6.** Care of microscope.
- Q. 7.** Steps and importance of Hematoxylin and Eosin staining.
- Q. 8.** Steps and importance of Congo Red staining.
- Q. 9.** Steps and importance of Perl's staining.

B.M.L.T. SECOND 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. Metachromasia means:
 - a. Staining of a tissue by the color of the original stain
 - b. Staining of a tissue by a color different from the original stain
 - c. Staining of granules of mast cells by a blue color after toluidine blue
 - d. Staining of phagocytic cells by trypan blue
2. The purpose of the microscope is:
 - a. Fixation
 - b. Staining
 - c. Mounting
 - d. Resolution
3. When using a microscope, objective lenses can be found to have a magnification of all of the following, EXCEPT:
 - a. 4X
 - b. 10X
 - c. 40X
 - d. 100X
4. Which of the following stain blue with H & E stain?
 - a. Cytoplasm
 - b. Collagen fibers
 - c. Nucleus
 - d. Elastic fibers
5. Which of the following stains is used for routine histological examination?
 - a. Wright's stain
 - b. Hematoxylin and eosin stain
 - c. Sudan stain
 - d. Silver impregnation
6. What type of epithelium is more than one layer thick?
 - a. Simple
 - b. Stratified
 - c. Squamous
 - d. Cuboidal
7. What type of epithelium forms the epidermis?
 - a. Simple squamous epithelium
 - b. Simple cuboidal epithelium
 - c. Simple columnar epithelium
 - d. Stratified squamous epithelium
8. Which of the following is used to stain lipids?
 - a. Wright's stain
 - b. Hematoxylin and eosin stain
 - c. Sudan stain
 - d. Silver impregnation
9. What is compact bone?
 - a. Dense bone
 - b. Woven bone
 - c. Immature bone
 - d. Cancellous bone
10. What is the covering of a bone?
 - a. Perimysium
 - b. Periosteum
 - c. Perichondrium
 - d. Perineurium
11. Which structure has oxygenated blood?
 - a. Vein
 - b. Artery
 - c. Nerve
 - d. Heart
12. Which of these have a role in digestion of food?
 - a. Intestine
 - b. Pancreas
 - c. Gall bladder
 - d. All of the above
13. Special stain for amyloid is:
 - a. Sudan black
 - b. Perl's stain
 - c. Congo red stain
 - d. Masson's trichromes stain
14. Iron can be demonstrated by:
 - a. Sudan black
 - b. Perl's stain
 - c. Congo red stain
 - d. Masson's trichrome stain

Regn. No.....

Paper Code: BM- 201...

B.M.L.T. SECOND 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.** Depict the glycolytic pathway with the help of a flow chart showing all steps in detail. Explain its energetics in anaerobic conditions (5+2=7 marks)
- Q. 2.** Why is the TCA cycle known as the 'Amphibolic Pathway'? Draw the TCA cycle in complete detail showing all the involved enzymes and coenzymes. (2+5=7 marks)
- Q. 3.** How are fatty acids mobilized from the adipose tissue? Explain how these fatty acids are activated and oxidized by the pathway of beta oxidation. Add a note on the amount of energy obtained from oxidation of palmitic acid. (2+3+2=7 marks)
- Q. 4.** Draw the structure of cholesterol explaining its important features. What is the importance of cholesterol in our body? Write the four major phases of de novo synthesis of cholesterol. (1.5+1.5+4=7 marks)
- Q. 5.** What is transamination? Give one example. Diagrammatically represent the urea cycle and show its relationship with the TCA cycle. (2+1+4=7 marks)
- Q. 6.** What are vitamins? How are they classified and why? Write the names of the diseases caused by deficiency of a) Thiamine b) Niacin c) Vitamin B12 d) Vit C (1+2+4=7 marks)
- Q. 7.** What are lipoproteins? How are they classified and why? Briefly write their functions. (1+2+4=7 marks)
- Q. 8.** What instructions will you give a patient to prepare him for a Glucose Tolerance Test? Describe the procedure for sampling in GTT. Draw a normal GTT graph. Write the reference ranges for fasting and post-prandial blood glucose (2+2+2+1=7 marks)
- Q. 9.** Write notes on : (3.5+3.5=7 marks)
a. Lipid Profile
b. Plasma proteins

B.M.L.T. SECOND 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. Which of the following does **NOT** take part in the urea cycle?
 - a. Arginine
 - b. Aspartate
 - c. Arginosuccinate
 - d. Urease
2. The reactions of urea cycle occur in -
 - a. Cytosol
 - b. Mitochondria
 - c. Mitochondrial matrix and the cytosol
 - d. Lysosomes
3. Transaminases require -
 - a. PLP
 - b. FAD
 - c. TPP
 - d. NAD⁺
4. Which of the following is **regulatory** enzyme in cholesterol synthesis -
 - a. HMG CoA synthase
 - b. HMG CoA reductase
 - c. HMG CoA lyase
 - d. HMG CoA hydratase
5. The principle source of glucose after an overnight fast is-
 - a. Gluconeogenesis
 - b. Glycolysis
 - c. Glycogenolysis
 - d. HMP pathway
6. The TCA cycle is -
 - a. Only anabolic
 - b. Only catabolic
 - c. Amphibolic
 - d. Only anaplerotic
7. One of the following hormones has a hypoglycemic effect -
 - a. Glucagon
 - b. Thyroxine
 - c. Epinephrine
 - d. Insulin
8. Rate regulating step in the fatty acid synthesis is controlled by enzyme-
 - a. propionyl CoA carboxylase
 - b. Pyruvate dehydrogenase
 - c. acetyl CoA carboxylase
 - d. α- ketoglutarate dehydrogenase
9. The following are the functions of pentose phosphate pathway, **EXCEPT**-
 - a. Interconverts hexoses and pentoses
 - b. Produces NADPH
 - c. Supplies ribose-5-phosphate
 - d. Converts glucose to galactose
10. Number of β-oxidation cycles that a 16 carbon saturated fatty acid undergoes -
 - a. 5
 - b. 7
 - c. 6
 - d. 8
11. Which of the following is **NOT** a lipoprotein?-
 - a. LDL
 - b. IDL
 - c. FFA-Albumin
 - d. Chylomicron
12. Bile salts are derived from -
 - a. Phospholipids
 - b. Triacylglycerol
 - c. Fatty acids
 - d. Cholesterol
13. The following are the ketone bodies **EXCEPT**
 - a. Acetoacetyl CoA
 - b. β-hydroxy butyrate
 - c. Acetone
 - d. Acetoacetate
14. Which one of the following transfers fatty acids from cytosol to mitochondria?
 - a. Carnosine
 - b. Creatine
 - c. Carnitine
 - d. Citrate

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

[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 the principle of electrophoresis. Describe how a mixture of proteins can be separated by agarose gel electrophoresis. (3.5+3.5=7 marks)
- Q. 2.** Write the principle of paper chromatography. Describe how you would separate a mixture of amino acids by paper chromatography. (3.5+3.5=7 marks)
- Q. 3.** Name at least 4 automated analyzers which you have seen in the reference laboratory. Describe the principle and working of a fully automated clinical chemistry analyzer. (2+3+2=7 marks)
- Q. 4.** Write the principles of the following techniques (use diagrams to support your answer). (3.5+3.5=7 marks)
- a. Turbidimetry
 - b. Flame Photometry
- Q. 5.** Name four biochemical investigations which can be performed by the technique of ELISA. Describe the principles of indirect and sandwich ELISA. (2+5=7 marks)
- Q. 6.** Define the Beer's Law and the Lambert's Law. Write the range of the visible spectrum. Why is a prism or a diffraction grating used in a spectrophotometer? (2+2+1+2=7 marks)
- Q. 7.** Describe briefly the following : (3.5+3.5=7 marks)
- a. Chemiluminescence
 - b. Immunofluorescence
- Q. 8.** Explain in detail the principle and working of a colorimeter. (3.5+3.5=7 marks)
- Q. 9.** Write the full forms of the following abbreviations - (7x1=7 marks)
- a. PAGE
 - b. HPLC
 - c. RIA
 - d. TLC
 - e. pO₂
 - f. OD
 - g. ELISA
 - h. nm
 - i. IU/L

B.M.L.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2015**BIOCHEMISTRY (II)****PAPER TWO (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

- One of the following is **NOT** a type of chromatography -
 - Ion exchange
 - Addition
 - Affinity
 - Partition
- All of the following are measured on a blood gas analyzer **EXCEPT** -
 - pH
 - Fe³⁺
 - HCO₃⁻
 - pO₂
- Na⁺ and K⁺ concentrations can be estimated by all of the following **EXCEPT** -
 - Ion Selective Electrodes
 - Flame photometry
 - Nephelometry
 - Chromatography
- The term chromatography was coined by -
 - Ronald Ross
 - Tswett
 - Fleming
 - Watson & Crick
- In order to maintain good quality of reagent strips in a dry chemistry analyzer, it is most important to maintain the -
 - Atmospheric pressure
 - Humidity
 - Quality of water
 - Vacuum
- The number of tests which can be done by an autoanalyser in one hour is called the -
 - Flow rate
 - Program rate
 - Run rate
 - Throughput rate
- The sampling and reagent proportioning devices on the automated analyser Unicel DXC 800 in your Clinical biochemistry Lab are called -
 - Pipettes
 - Probe
 - Prods
 - Pumps
- The technique commonly used for estimation of hormones is -
 - Chromatography
 - Electrophoresis
 - ELISA
 - Nephelometry
- The technique used for estimation of Glycosylated hemoglobin in the Clinical Biochemistry Lab at our hospital is-
 - TLC
 - HPLC
 - Paper chromatography
 - Gel filtration chromatography
- The amino acids separated by paper chromatography are visualized by reacting them with -
 - Phenolphthalein
 - Iodine
 - Ninhydrin
 - Anilin
- Electrophoresis of any substance depends upon
 - Size of the substance
 - Charge of the substance
 - Viscosity of the medium
 - All of the above
- The Ultraviolet range of light lies between -
 - 400-490 nm
 - 190-390 nm
 - 400-800 nm
 - 10-190 nm
- The filter color used to measure optical density of any blue color solution is -
 - Blue
 - Yellow
 - Red
 - Green
- Which of the following statements about chromatography is **INCORRECT**?
 - Silica gel is used to be coated onto the plates for thin-layer chromatography
 - The R_f value compares the distance travelled by a component substance to that travelled by the solvent
 - Every component in a mixture can be separated by using chromatography
 - Column chromatography can separate different solutes in a mixture for further use.

B.M.L.T. SECOND 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.** What is the causative agent of diphtheria? Name one special stain used for this bacteria and describe its morphology. Enumerate different culture media used for the isolation of this bacteria. (1+1+2+3=7)
- Q. 2.** Define enterobacteriaceae? What are the common characteristics of the organisms of this family? Name the *Escherichia coli* groups causing diarrhoea. (2+2+3=7)
- Q. 3.** Write short notes on: (2 X 3.5 = 7)
- a. Coagulase test
 - b. LJ media
- Q. 4.** How will you process a urine sample in the microbiology laboratory? 7
- Q. 5.** Enumerate: (2+2+3=7)
- a. Two culture media used for isolation of salmonellae
 - b. Two capsulated bacteria
 - c. Three motile bacteria
- Q. 6.** Write the differences between: (2 X 3.5 = 7)
- a. *Staphylococcus* and *Streptococcus*
 - b. *E. coli* and *Klebsiella*
- Q. 7.** Name the various culture media used for *Vibrio cholerae*. Discuss the laboratory diagnosis of cholera. 7
- Q. 8.** Write in brief: (2 X 3.5 = 7)
- a. Quellung test
 - b. Satellitism
- Q. 9.** Write down the procedure of collection and processing of a blood sample 7

Regn. No.....

Paper Code: BM- 203...

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

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. Darting motility is seen :
 - a. Proteus
 - b. E.coli
 - c. Vibrio
 - d. Salmonella
2. Oxidase positive bacteria is:
 - a. Streptococcus pyogenes
 - b. Staphylococcus aureus
 - c. Pseudomonas aeruginosa
 - d. Pneumococcus
3. Which of the following bacteria is catalase positive:
 - a. Staphylococcus aureus
 - b. Streptococcus pyogenes
 - c. Enterococcus
 - d. Pneumococcus
4. Epidemic typhus is caused by:
 - a. R. prowazekii
 - b. R. quintana
 - c. R. akari
 - d. C. burnetti
5. Stalactite growth is a feature of-
 - a. Hemophilus
 - b. Yersinia
 - c. Bordetella
 - d. Brucella
6. BCG vaccine is a:
 - a. Live attenuated preparation
 - b. killed preparation
 - c. toxoid preparation
 - d. preparation recombinant
7. Satellitism is a feature of
 - a. Hemophilus
 - b. Yersinia
 - c. Bordetella
 - d. Brucella
8. Chlamydia causes all of the following EXCEPT :
 - a. trachoma
 - b. Non-gonococcal urethritis
 - c. Pneumonia
 - d. Parotitis
9. Which of the following bacteria is acid fast:
 - a. E.coli
 - b. Salmonella
 - c. Mycobacterium tuberculosis
 - d. Vibrio
10. Causative organism of syphilis is :
 - a. Mycoplasma
 - b. Salmonella
 - c. Mycobacterium tuberculosis
 - d. Treponema pallidum
11. The Widal test is a type of
 - a. Precipitation reaction
 - b. Agglutination reaction
 - c. Complement fixation test
 - d. Immunofluorescence
12. Trachoma is caused by which serovar of Chlamydia
 - a. A, B, Ba, C
 - b. D-K
 - c. L₁-L₃
 - d. all of the above
13. Q fever is caused by:
 - a. R. prowazekii
 - b. R. quintana
 - c. R. akari
 - d. C. burnetti
14. Which of the following is a Gram negative bacilli –
 - a. Mycobacterium tuberculosis
 - b. Escherichia coli
 - c. Streptococcus
 - d. Staphylococcus

Regn. No.....

Paper Code: BM- 204...

B.M.L.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2015
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. Name hepatitis viruses. Write a short note on blood borne hepatitis viruses.

(3+4=7)

Q. 2. Classify fungi .Name one media used for growing fungi along with its constituents.

7

Q. 3. Write short notes on:

(2 X 3.5 = 7)

a. Candida albicans

b. Antigenic variation in influenza virus

Q. 4. What are the modes of transmission of HIV? Write briefly on post exposure prophylaxis of HIV.

7

Q. 5. Enumerate:

(2+1+4=7)

a. Two DNA viruses.

b. One capsulated yeast.

c. Four dimorphic fungi.

Q. 6. Write the differences between:

(2 X 3.5 = 7)

a. Orthomyxovirus and Paramyxovirus.

b. Killed polio vaccine and oral polio vaccine.

Q. 7. Name different species of aspergillus. What are the diseases caused by aspergillus? Which species of aspergillus gives black coloured colony when cultured on SDA media?

(3+3+1=7)

Q. 8. Write in brief:

(2 X 3.5 = 7)

a. KOH preparation for fungi

b. Dermatophytes

Q. 9. Classify the herpes viruses. Enumerate the diseases caused by EBV.

7

B.M.L.T. SECOND 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. The symmetry of pox virus is:
 - a. Helical
 - b. Complex
 - c. Tubular
 - d. None of the above
2. pH of SDA media is:
 - a. 5.4
 - b. 6.4
 - c. 7.4
 - d. 8.4
3. Which of the following fungi is not a mold-
 - a. Aspergillus
 - b. Penicillium
 - c. Mucor
 - d. Cryptococcus
4. Asexual spores of fungi following EXCEPT:
 - a. Arthrospores
 - b. Chlamydospores
 - c. Blastospores
 - d. Ascospores
5. Which of the following species of *Candida* is most frequently associated with human infections?
 - a. *C. albicans*
 - b. *C. Tropicalis*
 - c. *C. glabrata*
 - d. *C. Krusei*
6. Which of the following dermatophytes can infect hair, skin and nail?
 - a. Trichophyton
 - b. Microsporum
 - c. Epidermophyton
 - d. None of the above
7. What is the shape of the rabies virus?
 - a. Spherical
 - b. Polygonal
 - c. Bullet shaped
 - d. Tubular
8. All of the following hepatitis viruses are RNA viruses EXCEPT :
 - a. Hepatitis A virus
 - b. Hepatitis B virus
 - c. Hepatitis E virus
 - d. Hepatitis G virus
9. Which of the following stain is used for Cryptococcus:
 - a. Negative India ink
 - b. Albert
 - c. Ziehl neelsen stain
 - d. None of the above
10. Segmented RNA is seen in :
 - a. Rabies virus
 - b. Polio virus
 - c. Influenza virus
 - d. Herpes virus
11. Negri bodies are seen in the following viral infection:
 - a. Rabies virus
 - b. Polio virus
 - c. Influenza virus
 - d. Herpes virus
12. An example of artificial virus is :
 - a. Rabies virus
 - b. Polio virus
 - c. Influenza virus
 - d. Vaccinia virus
13. Which of the following is the largest virus:
 - a. Parvo
 - b. Adeno
 - c. Corona
 - d. Small pox
14. Which of the following dermatophytes can infect only skin and hair?
 - a. Trichophyton
 - b. Microsporum
 - c. Epidermophyton
 - d. None of the above

Regn. No.....

Paper Code: BM- 205...

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

[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. Discuss LE cell phenomenon and methods to detect LE Cell.
- Q. 2. Discuss the structure and functions of Hemoglobin.
- Q. 3. What is antibody? Discuss the various types of antibodies.
- Q. 4. Describe preparation and staining of bone marrow smears.
- Q. 5. Write short notes on:
- a. T Lymphocyte
 - b. Rheumatoid factor
- Q. 6. Write short notes on:
- a. Fresh Frozen plasma
 - b. Cross matching
- Q. 7. Draw well labelled diagrams of the following:
- a. Eosinophil
 - b. Any two red cell anomalies
- Q. 8. Write short notes on:
- a. Rh antigen
 - b. Transfusion reaction
- Q. 9. Write the storage conditions and shelf life of whole blood and various blood components.

B.M.L.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2015
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. Normal percentage of Neutrophils in a blood sample is:
 - a. 40-75
 - b. 1-6
 - c. 7-10
 - d. 0-1
2. Increase in Total Leucocyte count is termed:
 - a. Anemia
 - b. Leucocytosis
 - c. Polycythemia
 - d. Thrombocytopenia
3. Hemoglobin estimation is done by which method:
 - a. Sahli's method
 - b. Mantoux test
 - c. Benedict's test
 - d. Heat coagulation method
4. Blood group antigens are present on the surface of:
 - a. Platelets
 - b. Lymphocytes
 - c. RBC
 - d. Neutrophils
5. Low value of Hemoglobin indicates:
 - a. Infection
 - b. Anemia
 - c. Diabetes
 - d. Leukemia
6. Which of these leukocytes is an Agranulocyte?
 - a. Basophil
 - b. Eosinophil
 - c. Neutrophil
 - d. Lymphocyte
7. Cells in the red bone marrow that give rise to all the formed elements of the blood are called
 - a. Fibrinogens
 - b. Stem cells
 - c. Megakaryoblasts
 - d. Proerythroblasts
8. Which of these is not found in erythrocytes?
 - a. Lipids
 - b. ATP
 - c. Haemoglobin
 - d. Ribosomes
9. Which of these conditions occur in a normal individual living at a high altitude?
 - a. Anemia
 - b. Haemophilia
 - c. Leukemia
 - d. Secondary polycythemia
10. In patients with jaundice which of the following collects in the circulation and interstitial spaces.
 - a. Lymphocytes
 - b. Nitric oxide
 - c. Biliverdin
 - d. Bilirubin
11. Patients of Blood group O can receive blood from which group donors?
 - a. A,B and O
 - b. O
 - c. A
 - d. AB
12. Erythrocyte is another name for which cell?
 - a. Red blood cell
 - b. White blood cell
 - c. Platelet
 - d. Leucocyte
13. Normal human blood is mostly composed of-
 - a. RBC
 - b. WBC
 - c. Plasma
 - d. Hemoglobin
14. Plasma cell is derived from which cell
 - a. T Lymphocyte
 - b. B Lymphocyte
 - c. Platelet
 - d. Natural killer cell

Regn. No.....

Paper Code: BM- 206...

B.M.L.T. SECOND 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.** Enumerate various types of microscopes. Describe briefly about phase contrast microscope.
- Q. 2.** Enumerate various connective tissue stains used in histopathology and describe procedure of any one.
- Q. 3.** Describe the principle of metal impregnation techniques and write procedure of any one stain.
- Q. 4.** How will you demonstrate the following?
- a.** Melanin on tissue section
 - b.** Glycogen on tissue section
- Q. 5.** Write short notes on:
- a.** Metachromatic dyes
 - b.** Staining and preparation of bone marrow smears.
- Q. 6.** Write a short note on semen examination.
- Q. 7.** Write a short note on demonstration of minerals in histopathology sections.
- Q. 8.** Write briefly on collagen staining on histopathology.
- Q. 9.** Write briefly about types of hematoxyline stains.

B.M.L.T. SECOND 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. Bone marrow aspiration is done by
 - a. LP needle
 - b. 24 gauge needle
 - c. Jamshidi needle
 - d. Sahla's needle
 2. Low motility of sperms is known as
 - a. Teratozoospermia
 - b. Asthenozoospermia
 - c. Oligozoospermia
 - d. None of the above
 3. Hemosiderin is stained by
 - a. Methylene blue
 - b. Pap stain
 - c. Giemsa stain
 - d. Perl's stain
 4. On polarizing microscope amyloid gives
 - a. Orange birefringence
 - b. Apple red birefringence
 - c. Apple green birefringence
 - d. Blue birefringence
 5. Metachromatic stain is
 - a. Brilliant Cresyl blue
 - b. HE stain
 - c. Reticulin stain
 - d. PAS stain
 6. PAS stain is used to stain
 - a. DNA
 - b. Copper
 - c. Carbohydrate
 - d. Hemoglobin
 7. Reticulin stain gives which colour to fibrin
 - a. Blue
 - b. Black
 - c. Brown
 - d. Red
 8. Masson Fontana stain uses which principle
 - a. Metachromatic technique
 - b. Ion exchange technique
 - c. Silver impregnation technique
 - d. None of the above
 9. Cervical vaginal smears are commonly stained by
 - a. HE stain
 - b. Von Kossa stain
 - c. Pap stain
 - d. Giemsa stain
 10. Pap staining uses which of the following stain
 - a. Gram's stain
 - b. Per iodolic acid
 - c. OG-6
 - d. Crystal blue
- Fill in the blanks:**
11. Stain used for demonstration of amyloid is-----
-----.
 12. Bile is stained by-----stain
on biopsy.
 13. Calcium is stained by-----
stain.
 14. Mucicarmine stain is used for-----
staining.

B.M.L.T. SECOND 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. a.** How is blood Glucose levels regulated after meals? (3.5 marks)
- b.** Give the energetics of glycolysis under aerobic and anaerobic conditions. (3.5 marks)
- Q. 2.** What is GTT? Explain how will you prepare a patient for this investigation and how are the samples collected? (2+5=7marks)
- Q. 3.** Briefly outline the steps in synthesis of cholesterol in our body? How is cholesterol biosynthesis regulated? (3.5+3.5=7marks)
- Q. 4.** Give a detailed account of ketogenesis and ketolysis. What is ketosis? Explain how it occurs. (2+2+3=7 marks)
- Q. 5.** What is transdeamination? Describe the Urea cycle and its importance. (2+5=7 marks)
- Q. 6.** What are plasma proteins? List their types and importance. Explain how will you estimate the various fractions of plasma proteins using a colorimetric method? (1+3+3=7 marks)
- Q. 7.** Describe source, biochemical role and deficiency diseases of vitamin A. (1+3+3=7marks)
- Q. 8. a.** What are B-complex vitamins? Describe the role of any one. (3.5 marks)
- b.** What is scurvy? What is the biochemical role of the vitamin involved in this disease? (3.5 marks)
- Q. 9.** Write short notes on : (3 +4=7 marks)
- a.** Significance of HMP shunt
- b.** Lipoprotein structure and Lipid Profile

B.M.L.T. SECOND 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. Blood for glucose estimation is collected in a grey top vacutainer because it contains fluoride which inhibits one of the following enzymes.
 - a. Hexokinase
 - b. Aldolase
 - c. Enolase
 - d. Pyruvate kinase
2. The principal site for gluconeogenesis is
 - a. Kidney
 - b. Muscle
 - c. Liver
 - d. Adipose tissue
3. Insulin promotes all of the following processes **EXCEPT** -
 - a. Glycogenesis
 - b. Lipogenesis
 - c. Gluconeogenesis
 - d. Glycolysis
4. The rate limiting enzyme in the biosynthesis of cholesterol is
 - a. HMG-CoA reductase
 - b. HMG- CoA Synthase
 - c. Squalene Synthase
 - d. Mevalonate Kinase
5. In Beta oxidation of fatty acids, the following are utilized as coenzymes-
 - a. FAD and NAD⁺
 - b. NAD⁺ and NADP⁺
 - c. FAD and NADP⁺
 - d. FAD and FMN
6. What test is used to identify ketone bodies?
 - a. Rothera's
 - b. Benedict's
 - c. Barfoed's
 - d. Fehling's
7. The major source of cholesterol deposited in arterial smooth muscle cells is -
 - a. LDL
 - b. HDL
 - c. VLDL
 - d. Chylomicrons
8. What is the key enzyme of urea synthesis?
 - a. Carbamoyl phosphatase
 - b. Carbamoyl Phosphate Synthetase
 - c. Carbamoyl Sythetase
 - d. Carbamoyl Dehydrogenase
9. Pellagra is due the deficiency of-
 - a. Niacin
 - b. Pantothenic acid
 - c. Pyridoxine
 - d. Biotin
10. In adults, a severe deficiency of vitamin D causes-
 - a. Night blindness
 - b. Osteomalacia
 - c. Skin Cancer
 - d. Pellagra
11. 25-hydroxylation of Vitamin D₃ takes place in-
 - a. Liver
 - b. Kidney
 - c. Intestine
 - d. Pancreas
12. Free fatty acids are transported in plasma as a-
 - a. Component of VLDL
 - b. Component of Chylomicron remnants
 - c. Post of LDL
 - d. Ligand bound to albumin
13. Which of the following compound serve as a primary link between TCA cycle and urea cycle?-
 - a. Fumarate
 - b. Malate
 - c. Citrate
 - d. Succinate
14. Vitamin associated with synthesis of coagulation factor prothrombin-
 - a. Vitamin A
 - b. Vitamin C
 - c. Vitamin K
 - d. Vitamin D

Regn. No.....

Paper Code: BM- 202..

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

[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 a note on:

a. Principle on which the colorimeter works.

(3)

b. Basis of choosing the filters in colorimeter.

(4)

Q. 2. What is the principle of spectroscopy? Write the substances analyzed by it.

(4+)

Q. 3. How are sodium and potassium of serum and urine samples analyzed by flame photometer?

Q. 4. Define the following :

(3.5+3.5)

a. Point of care testing (POCT)

b. Integrated automation for clinical Biochemistry

Q. 5. Write the principle of blood gas analyzer. How will you assess blood pH, pCO₂, pO₂ and oxygen saturation by blood gas analyzer?

(3+4)

Q. 6. Write the principle and application of paper chromatography.

Q. 7. Differentiate between :

(3.5+3.5)

a. Turbidimetry and Nephelometry

b. Semi and auto analyzer

Q. 8. Write the principle and applications of Poly acryl amide gel electrophoresis.

Q. 9. Write the advantages and disadvantages of automation in Clinical Biochemistry.

B.M.L.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2016**BIOCHEMISTRY (II)****PAPER TWO (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 full form of the biochemical technique TLC is :
 - a. Thick layer chromatography
 - b. Third level colorimetry
 - c. Thin layer chromatography
 - d. Thin layer colorimetry
2. In order to maintain good quality of reagent strips in a dry chemistry analyzer, it is most crucial to maintain the :
 - a. Atmospheric pressure
 - b. Humidity
 - c. Quality of water
 - d. Vacuum
3. Commonly all of the following are measured on a blood gas analyzer **EXCEPT**:
 - a. pH
 - b. Fe
 - c. HCO₃
 - d. pO₂
4. One of the following is NOT a type of chromatography:
 - a. Ion exchange
 - b. Addition
 - c. Affinity
 - d. Partition
5. Na⁺ and K⁺ concentrations can be estimated by all **EXCEPT** :
 - a. Turbidimetry
 - b. Flame photometry
 - c. Nephelometry
 - d. Chromatography
6. Blank in colorimetry contains :
 - a. All the test reagents and serum
 - b. All the test reagent and water
 - c. Only test reagent
 - d. Only serum
7. Which of the following steps has not yet been automated?
 - a. Sample measurement
 - b. Mixing of reaction components
 - c. Incubation
 - d. Phlebotomy
8. Cuvette used in visible range colorimeter is made up of :
 - a. Quartz
 - b. Glass
 - c. Silica
 - d. Wood
9. For converting the value of BUN to Urea, it is multiplied by :
 - a. 1.42
 - b. 3.12
 - c. 2.14
 - d. 4.21
10. What is the function of photo detector?
 - a. It adjusts the wavelength passing through the sample
 - b. It adjusts the intensity of the light source
 - c. It converts light energy to electric energy
 - d. It converts all energy
11. HPLC consists of _____ components :
 - a. Two
 - b. Three
 - c. Four
 - d. Five
12. Basically, what is the path of light through a spectrophotometer?
 - a. Meter, Photodetector, Filter, Sample Light Source
 - b. Meter, Filter, Sample, Photodetector, Light Source
 - c. Light Source, Filter, Sample, Photodetector meter
 - d. Light Source, Sample, Filters, Meter, Photodetector
13. The term chromatography was coined by:
 - a. Tswett
 - b. Ohm
 - c. Tiselius
 - d. Friedrich
14. The sampling and reagent proportioning device the fully automated analyzer is :
 - a. Pumps
 - b. Probe
 - c. Pipettes
 - d. Peltier

Regn. No.....

Paper Code: BM- 203...

B.M.L.T. SECOND 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.** (a) Enumerate Gram positive cocci 3.5+3.5=7
(b) Draw and label the antigenic structure of streptococcus pyogenes.
- Q. 2.** (a) Enumerate four Gram negative organisms. 2+1+4=7
(b) Name the causative agent of Diphtheria.
(c) Enumerate culture media for the growth of the above organism
- Q. 3.** (a) Name the causative agent of Tetanus 3.5+3.5=7
(b) Discuss the laboratory diagnosis of Tetanus.
- Q. 4.** Write short notes on: 3.5+3.5=7
(a) Naegler reaction
(b) Bordetella.
- Q. 5.** (a) Enumerate species of Vibrio. 2+5=7
(b) Discuss the laboratory diagnosis of Cholera
- Q. 6.** (a) Classify Mycobacterium. 2+2+3=7
(b) Name culture media used for growth of Mycobacterium.
(c) Discuss the laboratory diagnosis of pulmonary tuberculosis.
- Q. 7.** Enumerate : 3.5+3.5
(a) Rickettsia.
(b) Pigments produced by Pseudomonas aeruginosa
- Q. 8.** Enumerate: 2+2+3=7
(a) Four culture media used for isolation of Pseudomonas.
(b) Two spore bearing bacteria.
(c) Three species of Streptococcus.
- Q. 9.** Write short notes on: 3.5+3.5=7
(a) Widal test
(b) VDRL test

Regn. No.....

Paper Code: BM- 203...

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

**MICROBIOLOGY (I)
PAPER THREE (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. BCG vaccine is a:
 - a. Live attenuated preparation
 - b. Killed preparation
 - c. Toxoid preparation
 - d. Recombinant preparation
2. Satellitism is a feature of :
 - a. Hemophilus
 - b. Yersinia
 - c. Bordetella
 - d. Brucella
3. Causative organism of syphilis is :
 - a. Mycoplasma
 - b. Salmonella
 - c. Mycobacterium tuberculosis
 - d. Treponema pallidum
4. Epidemic typhus is caused by:
 - a. R.prowazekii
 - b. R.quintana
 - c. R.akari
 - d. C.burnetti
5. Stalactite growth is a feature of:
 - a. Hemophilus
 - b. Yersinia
 - c. Bordetella
 - d. Brucella
6. Which of the following is a Gram negative bacilli?
 - a. Mycobacterium tuberculosis
 - b. Escherichia coli
 - c. Streptococcus viridans
 - d. Staphylococcus aureus
7. Q fever is caused by:
 - a. R.prowazekii
 - b. R.quintana
 - c. R.akari
 - d. C.burnetti
8. Chlamydia causes all of the following EXCEPT:
 - a. Trachoma
 - b. Non-gonococcal urethritis
 - c. Pneumonia
 - d. Parotitis
9. Which of the following bacteria is acid fast?
 - a. E.coli
 - b. Salmonella
 - c. Mycobacterium tuberculosis
 - d. Vibrio
10. Which of the following bacteria is catalase positive?
 - a. Staphylococcus aureus
 - b. Streptococcus pyogenes
 - c. Enterococcus
 - d. Pneumococcus
11. Oxidase positive bacteria is:
 - a. Streptococcus pyogenes
 - b. E.coli
 - c. Pseudomonas aeruginosa
 - d. Pneumococcus
12. Darting motility is seen in:
 - a. Proteus
 - b. E.coli
 - c. Vibrio
 - d. Salmonella
13. The Widal test is a type of :
 - a. Precipitation reaction
 - b. Agglutination reaction
 - c. Complement fixation test
 - d. Immunofluorescence
14. Trachoma is caused by which serovar of Chlamydia:
 - a. A, B, Ba, C
 - b. D-K
 - c. L1-L3
 - d. All of the above

Regn. No.....

Paper Code: BM- 204..

B.M.L.T. SECOND 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.** Write the classification of viruses. Describe the various methods used for virus cultivation.
- Q. 2.** Describe the microscopy and cultural characteristics of Candida. Enumerate the diseases caused by Candida infection.
- Q. 3.** Write Short notes on:
- a. Sabouraud's Dextrose agar
 - b. Bacteriophage
- Q. 4.** Write the structure, pathogenicity and laboratory diagnosis of Dengue.
- Q. 5.** Write the classification of Herpes viruses. Discuss the diseases caused by Epstein Barr virus.
- Q. 6.** Draw a well labelled diagram of:
- a. Human immunodeficiency virus
 - b. Influenza virus
- Q. 7.** Write short notes on:
- a. Polio vaccines
 - b. Classification of fungus
- Q. 8.** Write short notes on:
- a. Diseases caused by Aspergillus
 - b. Dimorphic fungi
- Q. 9.** Classify Hepatitis viruses. Write the various viral markers used in laboratory diagnosis of hepatitis B.

B.M.L.T. SECOND 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. Which of the following stains is used for diagnosis of fungal infection?
 - a. Gram stain
 - b. Lactophenol cotton blue
 - c. India ink
 - d. All of the above
2. ELISA kits are commercially available for detection of:
 - a. Anti-HIV antibodies
 - b. Hepatitis B surface antigen
 - c. Rotavirus
 - d. All of the above
3. Which pathogen can be transmitted by needle stick injury?
 - a. Staphylococcus
 - b. E. coli
 - c. Hepatitis B
 - d. M. tuberculosis
4. Which of the following dermatophytes can infect hair, skin and nail?
 - a. Trichophyton
 - b. Microsporum
 - c. Epidermophyton
 - d. All of the above
5. Hospital-associated infection can occur by:
 - a. Contact spread
 - b. Airborne spread
 - c. Oral route
 - d. All of the above
6. Which of the following is the largest virus?
 - a. Poxviruses
 - b. Hepatitis B virus
 - c. Rotavirus
 - d. Adenovirus
7. What is the common name for Human Herpesvirus 4?
 - a. Poxviruses
 - b. Cytomegalovirus
 - c. Epstein-Barr virus
 - d. Varicella-zoster virus
8. Which of the following viruses has segmented genome?
 - a. Hepatitis A virus
 - b. Mumps virus
 - c. Measles virus
 - d. Influenza virus
9. Which of the following mosquitoes transmits Chikungunya virus?
 - a. Anopheles
 - b. Aedes
 - c. Culex
 - d. Sandfly
10. Which of the following virus is bullet shaped?
 - a. Poxviruses
 - b. Rabies virus
 - c. Epstein-Barr virus
 - d. Rubella virus
11. Which of the following hepatitis viruses is DNA virus?
 - a. Hepatitis A virus
 - b. Hepatitis C virus
 - c. Hepatitis B virus
 - d. Hepatitis E virus
12. Which of the following culture media can be used for growing fungi?
 - a. Sabouraud's dextrose agar
 - b. Blood agar
 - c. Brain heart infusion broth
 - d. All of the above
13. Paul bunnel test is used for diagnosis of ?
 - a. Hepatitis B
 - b. HIV infection
 - c. Cytomegalovirus
 - d. Epstein -Barr virus
14. PCR stands for:
 - a. Polymerase chain reaction
 - b. Polymerase chain reagin
 - c. Polymerase complex reaction
 - d. Polymerase cleavage reaction

Regn. No.....

Paper Code: BM- 205... ✓

B.M.L.T. SECOND 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.** Enumerate complications of adverse blood transfusion. How will you investigate a transfusion reaction?
- Q. 2.** Write differences between cellular and humoral immunity.
- Q. 3.** How do you prepare and demonstrate an LE cell?
- Q. 4.** Discuss the synthesis of haemoglobin. Ennumerate the abnormal haemoglobins.
- Q. 5.** Write a short Note on Coombs test.
- Q. 6.** Write a short note on antibodies.
- Q. 7.** Write differences between leukemoid reaction and leukemia.
- Q. 8.** Discuss the types of red cell anomalies. Give suitable examples and diagrams.
- Q. 9.** Describe various types of blood group systems.

B.M.L.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2016
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. Who discovered blood groups?
 - a. Robertson
 - b. Watson
 - c. Henry
 - d. Landsteiner
2. Which of the following is not a blood group?
 - a. Kell
 - b. Q
 - c. Duffy
 - d. MNS
3. Which sample is not needed in investigating transfusion reaction?
 - a. Blood of patient
 - b. CSF of patient
 - c. Urine of patient
 - d. Blood in blood bag
4. Protoporphyrin is essential for synthesis of:
 - a. Urine
 - b. Bile
 - c. Haemoglobin
 - d. Myoglobin
5. Type of immunoglobulin secreted in saliva is:
 - a. IgM
 - b. IgG
 - c. IgA
 - d. IgD
6. Which is the commonest indication for giving whole blood?
 - a. Severe anaemia
 - b. Road traffic accident
 - c. Jaundice
 - d. Bleeding disorder
7. LE Cell indicates presence of:
 - a. Anti-mitochondrial antibodies
 - b. Anti-nuclear antibodies
 - c. Anti smooth muscle antibodies
 - d. None
8. CD4 antigen is present on which type of immune cell:
 - a. Plasma cells
 - b. Cytotoxic lymphocytes
 - c. Natural killer cells
 - d. T helper cells
9. Febrile non haemolytic transfusion reaction can be prevented by:
 - a. Proper screening of TTIs
 - b. Irradiation
 - c. Slow transfusion
 - d. Proper cross-match
10. Haem is degraded into biliverdin with the help of enzyme:
 - a. Haem Oxygenase
 - b. Carbonic anhydrase
 - c. Both
 - d. None
11. The type of leukocyte increased in skin allergic disorders:
 - a. Neutrophils
 - b. Lymphocyte
 - c. Monocyte
 - d. Eosinophils
12. Macrocytes are not seen in:
 - a. Megaloblastic anemia
 - b. Sideroblastic anemia
 - c. Haemolytic anemia
 - d. Liver disease
13. Reverse grouping involves:
 - a. Detection of antigens on cells
 - b. Detection of antigens in plasma
 - c. Detection of antibodies in cells
 - d. Detection of antibodies in plasma
14. Bombay blood group is a variant of which blood group system?
 - a. ABO system
 - b. Rh system
 - c. Kell system
 - d. Duffy system

Regn. No.....

Paper Code: BM- 206...

B.M.L.T. SECOND 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

A : Short answer questions:

(7 x 9 = 63)

Write a short note on:

- Q. 1.** Various types of microscope and steps needed for its proper maintenance
- Q. 2.** Semen examination.
- Q. 3.** Method of MGG stain.
- Q. 4.** Amyloid, its types, causes and method of demonstration in histological section.
- Q. 5.** Universal precautions.
- Q. 6.** Method of PERL's stain.
- Q. 7.** Method of PAS stain.
- Q. 8.** Method of hematoxylin and eosin stain.
- Q. 9.** Composition and function of bone marrow.

B.M.L.T. SECOND 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. Cellular ultrastructure can be seen by:
 - a. Phase contrast microscope
 - b. Interference microscope.
 - c. Electron microscope
 - d. Polarizing microscope
2. Bone marrow aspiration is done using _____ needle.
 - a. Vin silverman
 - b. Salah
 - c. Jamsheedi
 - d. Klima
3. Perls stain in bone marrow estimates body _____ stores.
 - a. Carbon
 - b. Fat
 - c. Copper
 - d. Iron
4. Asthenozoospermia is defined as abnormal _____ of sperm:
 - a. Shape
 - b. Viability
 - c. Motility
 - d. Morphology
5. Which of the following is a metachromatic stain?
 - a. Methylene blue
 - b. Hematoxyline and eosin
 - c. PAS
 - d. Reticulin
6. Which cell organelle is called as "powerhouse of cell"?
 - a. Mitochondria
 - b. Ribosomes
 - c. Golgi body
 - d. Lysosomes
7. Semen examination can only be performed after _____ days of abstinence.
 - a. 2
 - b. 4
 - c. 8
 - d. 12
8. Amyloid deposit shows apple green birefringence when stained by congo red and seen under _____.
 - a. Compound microscope
 - b. Dark field microscope
 - c. Polarizing microscope
 - d. Phase contrast microscope
9. Which stain is used to visualize Basement membrane in histological section?
 - a. H & E
 - b. MGG
 - c. PAS
 - d. Congo red
10. Heat coagulation test is used to detect _____ in urine:
 - a. Reducing sugars
 - b. Protein
 - c. Ketone bodies
 - d. Nitrite
11. Perl's stain positivity is seen as:
 - a. Red
 - b. Black
 - c. Blue
 - d. Pink
12. Nucleus is seen as _____ color in H & E stain.
 - a. Red
 - b. Black
 - c. Blue
 - d. Pink
13. Most common site of performing Bone marrow aspirate in adults is:
 - a. Sternum
 - b. Anterior superior iliac spine
 - c. Posterior superior iliac spine
 - d. Tibial tuberosity
14. Needle used to perform bone marrow biopsy is:
 - a. Vin silverman
 - b. Salah
 - c. Jamsheedi
 - d. Klima

Regn. No.....

Paper Code: BMLT- 201...

B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
SECOND YEAR EXAMINATION, JUNE/JULY - 2017
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.** Write the significance of the following metabolic pathways : (2x3.5=7 marks)
a. Hexose monophosphate shunt
b. Gluconeogenesis
- Q. 2.** Describe glycolysis and write the energetics of glycolysis under aerobic and anaerobic conditions. (4+3=7 marks)
- Q. 3.** Name the ketone bodies. Draw flow diagrams showing how the ketone bodies are synthesized and how they are utilized in the human body. Explain 'Ketoacidosis'. (1+2.5+2.5+1=7 marks)
- Q. 4.** Write the full forms of FBS, PPBS, GTT and HbA1c. What is the significance of estimating HbA1c in diabetic patients? What is the normal range of HbA1c? (4+2+1=7 marks)
- Q. 5.** Describe how fatty acids are mobilized from the adipose tissue and how they are oxidized in the tissues. Show how much energy is obtained from the oxidation of one molecule of palmitic acid. (2.5+2.5+2=7 marks)
- Q. 6.** Write the various tests done in a 'Lipid Profile' along with their reference ranges. Write the Friedewald's formula. How is a patient prepared before he/she can give a sample for the Lipid Profile? (3+2+2=7 marks)
- Q. 7.** Explain trans-deamination. Draw the urea cycle in detail and show how it is linked with the TCA cycle. (3+4=7 marks)
- Q. 8.** Write the deficiency diseases of the following vitamins: (1x7=7 marks)
a. Thiamine
b. Riboflavin
c. Niacin
d. Vitamin A
e. Vitamin B12
f. Vitamin C
g. Vitamin D
- Q. 9.** Name the tests done for detection of the following in urine: (1x7=7 marks)
a. Ketone bodies
b. Reducing sugar
c. Blood pigments
d. Bile pigments
e. Bile salts
f. Protein
g. Urobilinogen

B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
SECOND YEAR EXAMINATION, JUNE/JULY - 2017
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. The enzyme enolase of the glycolytic pathway is inhibited by:
 - a. Ca^{2+}
 - b. Fluoride
 - c. ATP
 - d. NAD^+
2. The normal range of fasting plasma glucose is:
 - a. 60 – 130 mg/dl
 - b. 70 – 100 mg/dl
 - c. 70 – 120 mg/dl
 - d. 80 – 140 mg/dl
3. The committed enzyme for glycolysis is:
 - a. Hexokinase
 - b. Glucokinase
 - c. Phospho fructokinase
 - d. Pyruvate kinase
4. In which vacutainer is a blood sample for estimation of HbA_{1c} collected ?
 - a. Yellow cap
 - b. Grey cap
 - c. Purple cap
 - d. Red cap
5. The product of glycolysis in RBCs is:
 - a. NADPH
 - b. Pyruvate
 - c. Lactate
 - d. CO_2
6. The primary ketone body is:
 - a. Acetone
 - b. Acetoacetate
 - c. β -Hydroxybutyrate
 - d. Butyrate
7. Which of the following substances is not produced from cholesterol:
 - a. Vitamin D
 - b. Bile salts
 - c. Bile pigments
 - d. Cortisol
8. The serum lipoprotein with highest endogenous triglyceride content is:
 - a. HDL
 - b. LDL
 - c. VLDL
 - d. Chylomicron
9. The net ATP generated by complete oxidation of 1 molecule of palmitic acid is:
 - a. 105 ATP
 - b. 106 ATP
 - c. 107 ATP
 - d. 108 ATP
10. If the triglyceride level is 415 mg/dl, total cholesterol is 210 mg/dl, the calculated level of VLDL by the Friedewalds formula would be:
 - a. 83 mg/dl
 - b. 42 mg/dl
 - c. 125 mg/dl
 - d. Friedewalds formula cannot be used
11. The ketone bodies are synthesized in the:
 - a. Kidneys
 - b. Liver
 - c. Heart
 - d. Skeletal muscle
12. The first cyclic intermediate to be synthesized during cholesterol synthesis is:
 - a. Squalene
 - b. Zymosterol
 - c. Lanosterol
 - d. Desmosterol
13. Deficiency of the vitamin folic acid results in:
 - a. Megaloblastic anemia
 - b. Hemolytic anemia
 - c. Microcytic anemia
 - d. Pernicious anemia
14. The major function of the chylomicrons is to transport:
 - a. Exogenous TG from intestine to liver
 - b. Endogenous TG from the liver to other tissues
 - c. Cholesterol from the liver to other tissues
 - d. Cholesterol from extrahepatic tissues to liver

Regn. No.....

Paper Code: BMLT- 202...

B. Sc. MEDICAL TECHNOLOGY (LABORATORY)
SECOND YEAR EXAMINATION, JUNE/JULY - 2017
BIOCHEMISTRY (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 the principle and applications of colorimeter and flame photometer. (3.5+3.5=7)
- Q. 2. What is HPLC? Write the clinical applications of HPLC. (4+3=7)
- Q. 3. Differentiate between: (3.5+3.5=7)
a. Dry and liquid chemistry analyzer.
b. Continuous and discrete flow analyzer.
- Q. 4. What is the principle and applications of blood gas analyzer? (4+3=7)
- Q. 5. What is ascending and descending paper chromatography? How would you separate a mixture of amino acid using paper chromatography? (2+5=7)
- Q. 6. Write the importance of auto and semi-auto analyzers in Biochemistry Laboratory. (3.5+3.5=7)
- Q. 7. Write the method to separate amino acids by agarose gel electrophoresis. (7)
- Q. 8. Write the principle and uses of turbidimetry and nephelometry. (3.5+3.5=7)
- Q. 9. Write short notes on: (3.5+3.5=7)
a. How are electrolytes determined by electrometric method in the Biochemistry Laboratory
b. Write the applications of spectrophotometry.

Regn. No.....

Paper Code: BMLT- 202...

B. Sc. MEDICAL TECHNOLOGY (LABORATORY)
SECOND YEAR EXAMINATION, JUNE/JULY - 2017
BIOCHEMISTRY (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. The device used to isolate light energy of a specific wavelength is called as :
 - a. Reflector
 - b. Refractor
 - c. Monochromator
 - d. Photo detector
2. In electrophoresis the rate of migration of charged molecules depends on :
 - a. Strength of current
 - b. Temperature
 - c. Size and pH
 - d. Solvent
3. A blank contains the _____ but not the dissolved chemical :
 - a. Solvent
 - b. Solute
 - c. Filter
 - d. Absorption spectrum
4. Study of movement of charged particles in an electric field is called :
 - a. Electrophoresis
 - b. Spectroscopy
 - c. Cell fractionation
 - d. Chromatography
5. HPLC consists of :
 - a. Two components
 - b. Three components
 - c. Four components
 - d. Five components
6. What is the function of an absorption spectrum?
 - a. It converts light energy into electrical energy
 - b. It is a graph of a chemical relating the absorbance to wavelength
 - c. It is a graph of a chemical relating the absorbance to concentration
 - d. It is the amount of radiation retained by a sample
7. One of the following is not a type of chromatography :
 - a. Ion exchange
 - b. Addition
 - c. Affinity
 - d. Partition
8. In order to maintain good quality of reagent strips in a dry chemistry analyzer, it is most important to maintain the:
 - a. Atmospheric pressure
 - b. Humidity
 - c. Quality of water
 - d. Vacuum
9. The number of tests which can be done by an auto analyzer in one hour is called:
 - a. Flow rate
 - b. Program rate
 - c. Run rate
 - d. Throughput rate
10. The technique commonly used for estimation of hormones is:
 - a. Chromatography
 - b. Electrophoresis
 - c. ELISA
 - d. Nephelometry
11. The primary ketone body is:
 - a. Acetone
 - b. Acetoacetate
 - c. β -Hydroxybutyrate
 - d. Butyrate
12. To convert urea into BUN the following formula is used:
 - a. $\text{Urea} \times 2.14 = \text{BUN}$
 - b. $\text{Urea} / 2.14 = \text{BUN}$
 - c. $\text{Urea} + 2.14 = \text{BUN}$
 - d. $\text{Urea} - 2.14 = \text{BUN}$
13. The formula for calculation of creatinine clearance is:
 - a. UV / P
 - b. PV / U
 - c. UP / V
 - d. $\text{U} + \text{V} / \text{P}$
14. One of the following parameters on the blood gas analyser is a calculated parameter:
 - a. pH
 - b. pCO_2
 - c. pO_2
 - d. HCO_3^-

Regn. No.....

Paper Code: BMLT- 203...

B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
SECOND 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.

- a. Enumerate four acid fast organisms.
- b. Name the causative agent of tuberculosis.
- c. Enumerate culture media for the growth of the above organism.

2

1

4

Q. 2.

- a. Classify streptococci.
- b. Draw and label the antigenic structure of *streptococcus pyogenes*.

3.5

3.5

Q. 3.

- a. Name the causative agent of diphtheria.
- b. Name one special stain used for the identification of causative agent morphology.
- c. Discuss the laboratory diagnosis of diphtheria.

1

1

5

Q. 4. Write short notes on:

3.5+3.5=7

- a. Naegler reaction
- b. M'Fadyean's reaction.

Q. 5.

- a. Enumerate *Escherichia coli* causing diarrhoea.
- b. Enumerate culture media used for growth of *Escherichia coli*.

2

5

Q. 6.

- a. Classify vibrios.
- b. Name four culture media used for *Vibrio cholerae*.
- c. Discuss the laboratory diagnosis of cholera.

2

2

3

Q. 7. Enumerate:

3.5+3.5=7

- a. Salmonellae causing enteric fever.
- b. Four culture media used for isolation of salmonellae.

Q. 8. Enumerate only:

2+2+3=7

- a. Pigments produced by *Pseudomonas aeruginosa*.
- b. Two spore bearing bacteria.
- c. Three species of *Brucella*.

Q. 9. Write short notes on:

3.5+3.5=7

- a. Widal test
- b. VDRL test

Regn. No.....

Paper Code: BMLT- 203...

B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
SECOND 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. Which of the following is a Gram negative bacilli:
 - a. *Mycobacterium tuberculosis*
 - b. *Escherichia coli*
 - c. *Streptococcus viridans*
 - d. *Staphylococcus aureus*
2. Q fever is caused by:
 - a. *R. prowazekii*
 - b. *R. quintana*
 - c. *R. akari*
 - d. *C. burnetti*
3. Which of the following bacteria is catalase positive:
 - a. *Staphylococcus aureus*
 - b. *Streptococcus pyogenes*
 - c. Enterococcus
 - d. Pneumococcus
4. Epidemic typhus is caused by:
 - a. *R. prowazekii*
 - b. *R. quintana*
 - c. *R. akari*
 - d. *C. burnetti*
5. Stalactite growth is a feature of-
 - a. Hemophilus
 - b. Yersinia
 - c. Bordetella
 - d. Brucella
6. BCG vaccine is a:
 - a. Live attenuated preparation
 - b. Killed preparation
 - c. Toxoid preparation
 - d. Recombinant preparation
7. Satellitism is a feature of
 - a. Hemophilus
 - b. Yersinia
 - c. Bordetella
 - d. Brucella
8. Chlamydia causes all of the following except:
 - a. Trachoma
 - b. Non-gonococcal urethritis
 - c. Pneumonia
 - d. Parotitis
9. Which of the following bacteria is acid fast:
 - a. E.coli
 - b. Salmonella
 - c. Mycobacterium tuberculosis
 - d. Vibrio
10. Causative organism of syphilis is :
 - a. Mycoplasma
 - b. Salmonella
 - c. *Mycobacterium tuberculosis*
 - d. *Treponema pallidum*
11. The Widal test is a type of :
 - a. Precipitation reaction
 - b. Agglutination reaction
 - c. Complement fixation test
 - d. Immunofluorescence
12. Trachoma is caused by which serovar of Chlamydia:
 - a. A,B,Ba C
 - b. D-K
 - c. L1-L3
 - d. All of the above
13. Oxidase positive bacteria is:
 - a. *Streptococcus pyogenes*
 - b. *E.coli*
 - c. *Pseudomonas aeruginosa*
 - d. *Pneumococcus*
14. Darting motility is seen in:
 - a. Proteus
 - b. E. coli
 - c. Vibrio
 - d. Salmonella

Regn. No.....

Paper Code: BMLT- 204...

**B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
SECOND 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. Enumerate hepatitis viruses. Write a note on faeco-orally transmitted hepatitis viruses.

Q. 2. Name the arboviruses that cause hemorrhagic fever. Write a short note on dengue.

Q. 3. Discuss the various methods for isolation of viruses in the laboratory.

Q. 4. Classify fungi. Name one media used for growing fungi along with its constituents.

(3+1+3=7)

Q. 5. Write the differences between:

- a. Killed and live polio vaccine
- b. Antigenic shift and antigenic drift

Q. 6. Write a note on post exposure prophylaxis of dog bite.

Q. 7. Write a note on varicella-zoster virus.

Q. 8. Enumerate only:

(3+3+1=7)

- a. Dimorphic fungi
- b. Species of candida
- c. One blood-borne hepatitis virus

Q. 9. Write short notes on-

- a. Cryptococcus
- b. Aspergillus

B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
SECOND YEAR EXAMINATION, JUNE/JULY - 2017
MICROBIOLOGY (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. What is the shape of the rabies virus?
 - a. Spherical
 - b. Polygonal
 - c. Bullet shaped
 - d. Tubular
2. All of the following hepatitis viruses are RNA viruses **except**:
 - a. Hepatitis A virus
 - b. Hepatitis B virus
 - c. Hepatitis E virus
 - d. Hepatitis G virus
3. Which of the following stain is used for cryptococcus?
 - a. Negative India ink
 - b. Albert
 - c. Ziehl Neelsen stain
 - d. None of the above
4. Which of the following dermatophytes can infect only skin and hair?
 - a. Trichophyton
 - b. Microsporum
 - c. Epidermophyton
 - d. None of the above
5. Segmented RNA is seen in:
 - a. Rabies virus
 - b. Polio virus
 - c. Influenza virus
 - d. Herpes virus
6. Which of the following fungi is **not** a mold?
 - a. Aspergillus
 - b. Penicillium
 - c. Mucor
 - d. Cryptococcus
7. Asexual spores of fungi following **except**:
 - a. Arthrospores
 - b. Chlamydospores
 - c. Blastospores
 - d. Ascospores
8. An example of artificial virus is :
 - a. Rabies virus
 - b. Polio virus
 - c. Influenza virus
 - d. Vaccinia virus
9. pH of SDA media is:
 - a. 5.4
 - b. 6.4
 - c. 7.4
 - d. 8.4
10. Negri bodies are seen in the following viral infection:
 - a. Rabies virus
 - b. Polio virus
 - c. Influenza virus
 - d. Herpes virus
11. Which of the following species of *Aspergillus* produce black coloured colonies on SDA?
 - a. *A. fumigatus*
 - b. *A. niger*
 - c. *A. flavus*
 - d. None of the above
12. The area of lysis on a bacterial growth caused by a phage is known as:
 - a. Plaque
 - b. Pock
 - c. Prophage
 - d. None of the above
13. The symmetry of pox virus is:
 - a. Helical
 - b. Complex
 - c. Tubular
 - d. None of the above
14. Which of the following dermatophytes can infect hair, skin and nail?
 - a. Trichophyton
 - b. Microsporum
 - c. Epidermophyton
 - d. None of the above

**B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
SECOND 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 methods of cross matching in blood bank. How will you check for compatibility?
- Q. 2.** Describe structure of immunoglobulins. Please draw neat labeled diagram.
- Q. 3.** Enumerate causes of leukopenia. Discuss in brief various leukocytic disorders.
- Q. 4.** Write briefly about LE cell.
- Q. 5.** Write about abnormal hemoglobin pigments. How will you identify and estimate it?
- Q. 6.** Write briefly about:
- a. B lymphocytes its types and functions
 - b. T lymphocytes and its functions
- Q. 7.** Draw labeled diagram of:
- a. Basophil in peripheral smear
 - b. Hypersegmented polymorph in peripheral smear
- Q. 8.** Write in brief about cells and organs of immune system.
- Q. 9.** Write short notes on:
- a. Fresh frozen plasma
 - b. Packed red cells

B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
SECOND YEAR EXAMINATION, JUNE/JULY - 2017
PATHOLOGY (I)
(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. Hemoglobin synthesis occur in:
 - a. RBCs
 - b. WBCs
 - c. Platelets
 - d. Monocytes
2. Causes of basophilia:
 - a. Parasitic infection
 - b. Typhoid
 - c. CML
 - d. Leukemoid reaction
3. Causes of leucopenia:
 - a. Parasitic infection
 - b. Typhoid
 - c. CML
 - d. Leukemoid reaction
4. Causes of neutrophilia:
 - a. Parasitic infection
 - b. Typhoid
 - c. CML
 - d. Leukemoid reaction
5. Target cells are seen in:
 - a. Liver disorder
 - b. IDA
 - c. Thalassemia
 - d. All of the above
6. Forward blood grouping should involve:
 - a. Detection of antigens on cells
 - b. Detection of antigens on plasma
 - c. Detection of antibodies on cells
 - d. Detection of antibodies on plasma
7. LE cells can be seen in:
 - a. Tuberculosis
 - b. Typhoid
 - c. Tumor
 - d. Rheumatoid arthritis
8. Helper cells are :
 - a. CD4
 - b. CD8
 - c. CD25
 - d. B-Lymphocytes
9. High grade fever, chills, backache and respiratory distress immediately on starting transfusion is most likely to be:
 - a. Immune hemolytic transfusion reaction
 - b. Febrile non hemolytic transfusion reaction
 - c. Anaphylactic transfusion reaction
 - d. Transfusion related acute lung injury
10.is like a double edged sword:
 - a. Anemia
 - b. Immunity
 - c. Allergy
 - d. Antigen
11. Who discovered the ABO blood grouping system?
 - a. Williams
 - b. Wintrobe
 - c. Mckenzie
 - d. Landsteiner
12. Immunoglobulins are secreted bycells:
 - a. B lymphocytes
 - b. T lymphocytes
 - c. Plasma cells
 - d. Neutrophils
13. One unit of blood can savelife:
 - a. One
 - b. Two
 - c. Three
 - d. Four
14. Platelets stored at.....in blood banks:
 - a. 4°C
 - b. 12°C
 - c. 22°C
 - d. 22°C on agitator

Regn. No.....

Paper Code: BMLT - 206...

**B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
SECOND 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)

Write a short note on:

- Q. 1.** What is the procedure of bone marrow aspiration? How do you prepare histological section of bone marrow biopsy?
- Q. 2.** Write principle, procedure, application and interpretation of PAS stain.
- Q. 3.** Write briefly about semen examination.
- Q. 4.** What is the principle of metachromatic staining? Give examples of metachromatic dyes.
- Q. 5.** Describe special stains for amyloid.
- Q. 6.** Write the steps of reticulin stain.
- Q. 7.** Write a note on polarizing microscope.
- Q. 8.** Discuss Papanicolou stain.
- Q. 9.** Enumerate the various minerals and pigments seen in tissues. How will you demonstrate them?

B.Sc. MEDICAL TECHNOLOGY (LABORATORY)
SECOND 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 is not stained by PAS?
 - a. Mucin
 - b. Fat
 - c. Fungi
 - d. Lymphoblast
2. In trichrome staining for connective tissue, what is the colour taken up by muscle:
 - a. Yellow
 - b. Red
 - c. Brown
 - d. Blue-black
3. Reticulin stain demonstrates:
 - a. Gliosis
 - b. Fibrosis
 - c. Collagen
 - d. Amyloid
4. Which pigment is normally found in lungs?
 - a. Iron
 - b. Carbon
 - c. Asbestos
 - d. Bilirubin
5. Ultrastructure of a cell can be visualized by:
 - a. Compound microscope
 - b. Phase contrast microscope
 - c. Electron microscope
 - d. Dark field microscope
6. Site of bone marrow examination in neonates is:
 - a. Sternum
 - b. PSIS
 - c. ASIS
 - d. Tibial tuberosity
7. Oligospermia means _____ of spermatozoa:
 - a. Decreased number
 - b. Decreased motility
 - c. Abnormal shape
 - d. All of the above
8. Nucleus takes up _____ color with haematoxylin and eosin stain:
 - a. Red
 - b. Green
 - c. Blue
 - d. Black
9. Iron stores in marrow are assessed by:
 - a. PAS stain
 - b. Masson Fontana stain
 - c. Perls' stain
 - d. Giemsa stain
10. We add the following to PAS stain:
 - a. Silver
 - b. Iron
 - c. Diastase
 - d. Collagenase
11. Which of the following is a metachromatic stain?
 - a. PAP
 - b. H&E
 - c. Reticulin
 - d. Toluidene blue
12. Which of the following is an amyloid stain?
 - a. Congo Red
 - b. Alcian blue
 - c. Mucicarmine
 - d. Sudan black
13. Metal impregnation technique is commonly used for:
 - a. Mercury
 - b. Lead
 - c. Mucicarmine
 - d. Sudan black
14. Resolution of microscope with objective of 100X and eye piece of 15X is ____:
 - a. 15 times
 - b. 150 times
 - c. 1500 times
 - d. 15000 times