2025/05

SET A

BACHELOR OF MEDICAL LABORATORY TECHNOLOGY
SECOND SEMESTER
BIOCHEMISTRY II
BMLT – 203 [REPEAT]

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs. **Full Marks: 70**

Objective

Time: 30 min. **Marks: 20**

Choose the correct answer from the following: ***1×20=20***

1. An adult human contains_____% water
   a. 40 b. 20
   c. 60 d. 100

2. Osmolarity means:
   a. The number of moles per litre of solvent b. The number of moles per kilogram of solvent
   c. The number of moles per litre of solution d. The number of moles per milliliter of solution

3. Which electrolyte is primarily responsible for regulating water balance impulses?
   a. Potassium b. Sodium
   c. Calcium d. Magnesium

4. The region of an enzyme where the substrate binds is called the:
   a. Inhibitory site b. Active site
   c. Co factor site d. Allosteric site

5. Which of the following does NOT affect enzyme activity?
   a. Temperature b. pH
   c. Light intensity d. Substrate concentration

6. In reversible inhibition, the inhibitor:
   a. Binds permanently to the enzyme b. Can be removed
   c. Destroys the enzyme d. Changes the enzyme's structure permanently

7. The building blocks of nucleic acids are:
   a. Amino acids b. Fatty acids
   c. Nucleotides d. Sugars

8. A nucleoside consists of:
   a. Sugar + Base + Phosphate b. Sugar + Phosphate
   c. Sugar + Base d. Base + Phosphate

9. Chargaff's rule states that:
   a. A = T and G = C
   b. A = G and T = C
   c. A + T = G + C
   d. All bases are equal

10. The purpose of water distillation is to:
   a. Add minerals to water
   b. Remove impurities and salts
   c. Increase pH
   d. Decrease conductivity

11. Ribozymes are:
   a. Proteins
   b. Enzymatic RNAs
   c. DNA fragments
   d. Hormones

12. In a distillation apparatus, water is converted to steam by:
   a. Cooling
   b. Evaporation
   c. Heating
   d. Mixing

13. What is the primary function of enzyme?
   a. To store energy
   b. To provide structural support
   c. To catalyze chemical reactions
   d. To replicate DNA

14. The pH meter measures:
   a. Temperature
   b. Acidity or alkalinity
   c. Sugar concentration
   d. Salinity

15. A colorimeter works on the principle of:
   a. Electricity
   b. Absorption of light
   c. Fluorescence
   d. Magnetic field

16. Flame photometers are used to estimate:
   a. Vitamins
   b. Proteins
   c. Sodium and Potassium
   d. Nucleic acids

17. The main function of water in the body is to:
   a. Provide energy
   b. Acts as a solvent
   c. Build muscles
   d. Digest fats

18. A non-vitamin co-enzyme is:
   a. NAD
   b. Co-enzyme Q
   c. FAD
   d. TPP

19. Denaturation of DNA refers to:
   a. Change in sugar
   b. Separation of DNA strands
   c. Loss of bases
   d. Breakdown of RNA

20. The pH of a neutral solution is:
   a. 3
   b. 5
   c. 7
   d. 9

-- --- --

Descriptive

Time : 2 hrs. 30 min. Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. What do you understand by Water Balance? Describe the function of water. State its distribution and elaborate on water turn over and balance 10

2. What is nucleic Acid? What are the different types of nucleic acid found inanimal cell and plant cell? State the various types of nucleotides present in nature. 10

3. Describe the mechanism of enzyme action 10

4. Describe the different factors that affect the enzyme activity 10

5. Explain the working principle and applications of a Colorimeter, Spectrometer, and Flame photometer 10

6. Define electrolyte imbalance, osmosis, osmolarity, osmolality and list down the common types of electrolytes. 10

7. State the difference between 10
   a. nucleotide and nucleosides.
   b. Re-naturation and denaturation of DNA

8. What is pH of a solution. State the equation for calculation of pH of a solution. State some application of the pH meter. 10

= = *** = =