KENYA MEDICAL TRAINING COLLEGE
FACULTY OF CLINICAL SCIENCES
DEPARTMENT OF CLINICAL MEDICINE

END OF SEMESTER EXAMINATION
FOR
MARCH 2021 CLASS – YEAR 1 SEMESTER I

PAPER: MEDICAL BIOCHEMISTRY I

DATE: 4th August, 2021	**TIME: 2 HOURS (2:00PM – 4:00 PM)**

INSTRUCTIONS

1. This paper consists of:
   - Section 1 (20 Multiple Choice Questions)
   - Section 2 (4 Short Answer Questions)
   - Section 3 (2 Long Answer Question)
2. Attempt **ALL** Questions
3. Write your ADMISSION **NUMBER** on all the answer sheets provided and on the question paper.
4. Ensure that all examination answer scripts are handed in at the end of the examination
5. Ensure you sign in the 'sign IN and OUT' examination register provided

EXAMINATION NUMBER .....

Section 1 (20 Multiple Choice Questions) (20 Marks)

1. Why is water referred to as a "Universal solvent"?
   a) It is amphoteric.
   b) Tasteless and odorless liquid at room temperature.
   c) Its ability to dissolve many substances.
   d) It forms hydrogen bonds with each other.
2. Which among the following is a trace element?
   a) Zinc.
   b) Sulphur.
   c) Nitrogen.
   d) Carbon.
3. Identify the natural source of amino Acids
   a) Beef
   b) Water
   c) Sugar
   d) solvents
4. Below are basic body electrolytes EXCEPT ONE
   a) Sodium(Na^+)
   b) Potassium(K^+)
   c) Calcium(Ca^+)
   d) Lead(Pb^+)
5. Which of the categories below comprises of soluble proteins?
   a) Albumins, Globulins and Histones
   b) Lipoprotein, Phosphoprotein and Metalloprotein
   c) Collagens, Elastin and Keratins
   d) Myoglobin, Ferritin and Actin.
6. What gives water its fluid consistency
   a) Cohesive forces
   b) Adhesive forces
   c) Weak hydrogen bonds
   d) Oxygen atoms
7. Identify the storage for polysaccharides
   a) Maltose
   b) Lactose
   c) Starch
   d) Sucrose
8. One of the amino acids listed below is Non-polar/ Aliphatic
   a. Glycine
   b. Histidine
   c. Arginine
   d. Tyrosine

9. Which of the diseases below is not associated with lipid absorption or digestion?
   a) Chyluria
   b) Chylothorax
   c) Pancreatitis
   d) Lactosuria
10. Cell properties are determined by portion of the sequence of
   a.RNA
   b. Peptide
   c.DNA
   d. Nucleotide
11. Building blocks for proteins are
   a. Amino acids
   b. Glucose
   c. Polypeptide
   d. Oligo polypeptide
12. What causes fatty liver disorder
   a) Failure of liver to secrete lipoprotein
   b) Excessive use of herbal Medicine
   c) Excessive alcoholism
   d) Lack of balanced diet
13. Concerning carbohydrates; Which one is NOT a simple carbohydrate
   a) Galactose
   b) Glucose
   c) Maltose
   d) Fructose
14. Lack of Insulin leads to which condition
   a. Diabetes Mellitus
   b. Diabetes Insipidus
   c. Obesity
   d. Appendicitis
15. Identify the blood clotting factor involved in blood coagulation
   a) Prothrombin
   b) Thrombin
   c) Antitrypsin
   d) Fetoprotein
16. Which electrolyte is important for regulating blood volume and maintaining muscle and nerve function?
   a. Na^+
   b. Cl^-
   c. K^+
   d. HCO_3^-
17. Removal of introns from mRNA is called
   a. Splicing

b. Polyad hydration
c. Elongation
d. Editing

18. Condition for excessive levels of potassium in blood
    a. Hypernatremia
    b. Hyperchloremia
    c. Hyperkalemia
    d. Hypermagnesemia
19. Respond to the following concerning water; about 60-70% of body water exist in the
    a. Extracellular compartments
    b. Joint space
    c. Intravascular space
    d. Intracellular fluid compartment
20. Molecules that allow organisms to transfer genetic information from one generation to the next are called
    a. Amino acids
    b. Nucleotides
    c. Nucleic acids
    d. Proteins

Section 2 (4 Short Answer Questions) (40 Marks)

1. Discuss the importance of biochemistry in Medicine **(10marks)**
2. Briefly discuss protein denaturation **(10marks)**
3. Define the following and give examples in each case
    a) Monosaccharides **(3marks)**
    b) Oligosaccharides **(3marks)**
    c) Polysaccharides **(4marks)**
4. Classify Amino acids on the basis of R-group giving examples **(10marks)**

SECTION C: LONG ANSWER QUESTIONS – (40 MARKS)

1. Define lipids, enumerate their functions and discuss the various classifications giving examples. **(20marks)**
2. Classify proteins based on composition giving examples. Give functions of proteins **(20marks)**