



KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2011/2012
INSTITUTION BASED PROGRAMME (DECEMBER SESSION)
EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE
(MEDICAL LABORATORY SCIENCES)
HML 101: BASIC BIOCHEMISTRY I

DATE: WEDNESDAY, 2ND MAY 2012

TIME: 8.00 A.M -10.00 A.M

INSTRUCTIONS

SECTION A . Answer all questions (5 marks each)

1. (a) Classify carbohydrates giving suitable examples (2 1/2 mks)
(b) Describe three structures and functions of phospholipids (2 1/2 mks)
2. Explain the lock and key hypothesis (5 mks)
3. Describe the process of glycosidic and peptide bond formation (5 mks)

SECTION B. Answer any ONE question (20 mks each)

4. Describe the classification of amino acids along with their structures (20 mks)
5. (a) Explain the factors that affect enzyme activity (10 mks)
(b) Describe the organization of protein structures (10 mks)

SECTION C (answer all questions by circling the correct one ½ Mark each)

1. Ribose and deoxy-ribose differ in structure around a single carbon namely
A) C₄ B) C₂ C) C₃ D) C₂
2. One of the following is not an aldose
A) Glucose B) galactose C) mannose D) fructose
3. Which of the following polysaccharide is composed of B-glycosidic bonds?
A) starch B) glycogen C) dextrin D) cellulose
4. The nitrogenous base present in lecithin is.....
A) choline B) fatty acid C) serine D) ethanolamine
5. Which of the following is an amphiphathic lipid
A) phospholipid B) fatty acid C) bile salts D) all above
6. The bonds in protein structure that are broken on denaturation are.....
A) hydrogen bonds B) peptide bonds C) ionic bonds D) disulfide bonds
7. Proteins are polymers of.....
A) Proline B) nucleic acids C) amino acids D) none
8. Name the sulfur containing essential amino acid
A) Glutamate B) methionine C) aspartate D) all above
9. The nitrogenous base not present in DNA structure is.....
A) Adenine B) guanine C) cytosine D) uracil
10. The backbone of nucleic acid structure is constructed by.....
A) Peptide bonds B) glycosidic bonds C) phosphodiester bonds D) all above
11. The fundamental unit of hereditary in living organism is.....
A) DNA B) nucleotide C) gene D) chromosome
12. Nucleotide is composed of.....
A) Base and pentose sugar

- B) pentose sugar and phosphate
 C) Base + pentose sugar and phosphate
 D) Base and phosphate
13. Pepsin is an example of a class of enzymes namely.....
 A) Oxidoreductases B) transferases C)Hydrolases D) ligases
14. The protein part of an enzyme is known as.....
 A) Holoenzyme B) prosthetic group C) proenzyme D) apoenzyme
15. Which enzyme below is regulated allosterically
 A) Phosphofructokinase
 B) Enolase
 C) Aldolase
 D) Thiokinase
16. What is the number of base pairs present in each turn of DNA helix?
 A) 2 B) 10 C) 5 D) 20
17. Palmitic acid has.....carbons
 A) 12 B) 14 C) 18 D) 16
18. Which order is correct order of base pairing?
 A) GC and TC B) GT and TC C) TA and GA D) GC and TA
19. Zymogens are.....
 A) Enzymes that promotes chemical reactions
 B) Enzymes synthesized as latent state until they undergo irreversible covalent activation
 C) Enzymes that act on peptide bonds
 D) None above
20. One of the molecule below is NOT a polysaccharide
 A) Cellobiose B) amylase C) Amylopectin D) Heparin
21. When two monosaccharide differ around a single carbon atom they are known as.....
 A) Isomer
 B) Stereoisomer
 C) Catenation
 D) Epimer

22. What is amphipathic lipids?
 A) Molecule with acidic and basic group
 B) Molecule with hydrophilic and hydrophilic group
 C) A soluble molecule in lipids
 D) All above
23. The number of double bond in arachidonic lipid
 A) 1 B) 2 C) 3 D) 4
24. Which of the following is a non-protein amino acid?
 A) Ornithine B) Homocysteine C) Histamine D) all of them
25. The existence of amino acid in dipolar molecule which is electrically neutral is known as.....
 A) Zwitterions B) isoelectric C) ampholyte D) isotopes
26. What is the number of amino acids in decapeptide?
 A) 5 B) 10 C) 7 D) 3
27. The hydrogen bond between guanine and cytosine base is.....
 A) 1 B) 2 C) 3 D) 4
28. The nucleotide that serves as an intermediate for biosynthetic reaction
 A) UDP-glucose B) CTP-acylglycerol C) S-adenosylmethionine D) all of them
29. The following coenzyme is a nucleotide
 A) NAD B) ATP C) GTP D) UTP
30. In feedback regulation the end product binds at
 A) Active site B) allosteric site C) ES complex D) none of these
