Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF **PURE AND APPLIED SCIENCES**

DIPLOMA IN PHARMACEUTICAL TECHNOLOGY
(DPT 13M)

AML 2111 : MEDICAL BIOCHEMISTRY I

SPECIAL/SUPPLEMENTARY: EXAMINATIONS

SERIES: OCTOBER 2013

TIME: 2 HOURS

INSTRUCTIONS:

You should have the following for this examination

- *Answer booklet*

This paper consists of **THREE sections A, B and C.**
Section A : Multiple Answer Questions Answer All
Section B. Short Essay Questions. Answer ALL
Section C has TWO essay Questions Answer BOTH questions

*This paper consists of **8** **PRINTED** pages*

SECTION A (40MARKS)

1. Which of the following is a sugar acid?
   a) Ascorbic acid
   b) Mannital
   c) Lactose
   d) Glucose

2. The following statements are true about starch except:-
   a) It contains amylase and amylopectin
   b) It is a homopolysaccharide
   c) It is a structural heteropolysaccharide
   d) It consists of glucose units

3. The following are basic amino acids except?
   a) Histidine
   b) Lysine
   c) Arginine
   d) Serine

4. The following are homopolysaccharides except?
   a) Proteoglycan
   b) Glyrogen
   c) Starch
   d) Cellulose

5. Non-essential amino acids
   a) Are components of tissue proteins

b) May be synthesized in the body

c) Have no role in the metabolism

d) Are not synthesized in the body

6. Fibrous proteins include the following except?

a) Histones

b) Collagens

c) Elastins

d) Keratins

7. Which of the following is not a lipid?

a) Fatty acids

b) Sterolds

c) Acylglycerols

d) Aminosugars

8. The monomeric unit of polysaccharides such as starch and cellulose is?

a) Fructose

b) Galactose

c) Glucose

d) Lactose

9. Fructose is a ?

a) Disaccharide

b) Monosaccharide

c) Glyroside

d) Amino acids

10. Which of the following is a pro-enzyme

a) Carboxypetidase

b) Aminopeptidase

c) Chymotrypsin

d) Pepsinogen

11. The golgi complex

a) Syntnesizes proteins

b) Produces ATP

c) Forms glycoproteins

d) Provides a pathway for transporting chemicals

12. The tertiary structure of a protein describe

a) The order of amino acids

b) Location of disulphide bonds

c) Loop regions of proteins

d) The ways of protein folding

13. Glycosphigolipids are combination of?

a) Ceramide with one or more sugar cesidues

b) Glycerol with galactose

c) Sphingosine with galasctose

d) Sphingosine with phosphoric acid

14. The following are aliphatic amino acids except?

a) Alanine

b) Valine

c) Leucine

d) Tyrosine

15. An aexample of a saturated falty acid is?

    a) Palmitic acid

    b) Oleic acid

    c) Linoleic acid

    d) Erucic acid

16. Which of the following is not a coenzyme?

    a) NAD

    b) COA

    c) FAD

    d) None of the above

17. An example of a lyase is?

    a) Glutamine synthetase

    b) Fumarase

    c) Cholinesteraise

    d) Amylase

18. The following are examples of sterols. Which one is not ?

    a) Prostaglandins

    b) Ergasterol

    c) Lonasteroal

    d) Cholesteroal

19. The following are structural polysaccharides except?

    a) Cellulose

    b) Glycogen

c) Peptidoglycan

d) Chitin

20. Which of the following is a deoxy sugar?

a) Glucose

b) Vibose

c) Deaoxyribose

d) Fructose

21. The α-helix of a polypeptide chain is stabilized by?

a) Peptide bonds

b) Hydrogen bonds

c) Disulphide bonds

d) Ester bonds

22. Which of the following statements is not true about amylopectin?

a) It is a component of starch

b) It is an unbranched polymer

c) Contains both α-1,4 and α-1,6 – linkages

d) It contrain glucosyl residues

23. One turn of the α-helix contains

a) 2 amino acids

b) 5 amino acids

c) 7 amino acids

d) 3.6 amino acids

24. The following organelles are present in animal cells except?

a) Cellwall

b) Mitochondria

c) Cytoplasm

d) Ribosomes

25. Which of the following is a function of a cell vacuole?

a) Digestion

b) Respiration

c) Segregation of waste products

d) Protein synthesis

26. The protein component of a holoenzyme is refered to as?

a) Apoenzyme

b) Cofacter

c) Prostrietic group

d) Activator

27. Sulfur containing amino acid is?

a) Cysteine

b) Valine

c) Serine

d) Tyrosine

28. Transferases are enzymes involved in the transfer of the following groups ecept?

a) Methyl

b) Acyl

c) Amino

d) Hydrogen

29. In a cell digestive enzymes are found in?

a) Ribosomes

b) Lysosomes

c) Chloroplase

d) Vacuole

30. The parent compound of prostaglandins is

a) Cholesterol

b) Wax

c) Fatty acid

d) Prostanoic acid

31. Which of the following is not a fatty acid?

a) Arachidonic acid

b) Palmitic

c) Stearic

d) Ascorbic acid

32. The most active site of cellular respiration is?

a) Mitochondria

b) Cytoplasm

c) Ribosomes

d) Golgi complex

33. Amino acids are linked together by?

a) Hydrogen bonds

b) Peptide bonds

c) Disulphide bonds

d) Phosphodiester bonds

34. The following are types of enzyme inhibition except?

a) Competitive

b) Non competitive

c) Uncompetitive

d) Specificity

35. When two carbohydrates are epimers

a) They differ in length by one carbon

b) One is an aldose , the other a ketose

c) They differ in there configuration around one carbon atom

d) None of the above

36. Which of the following is a polysaccharide?

a) Mannose

b) Ribose

c) Cellulose

d) Maltose

37. The epimer of mannosis is?

a) Fructose

b) Galactose

c) Glucose

d) Ribose

38. The following are phosphoglycerides except?

a) Phosphatidylserine

b) Cardiolipin

c) Phosphatidylcholine

d) Gangliosides

39. The following are cell organelles except

a) Pyranose

b) Cell membrane

c) Cytoplasm

d) Cytosol

40. Which of the following are not enzymes ?

a) Transferases

b) Lyases

c) Oxidoveductases

d) Glycosides

SECTION B (40 marks)

41. List FOUR functions of terpenes **(4marks)**

42. Explain any TWO characteristics of cells **(4marks)**

43. Distinguish between the following

(a) Homopolysaccharides and heteroly saccharides **(2marks)**

(b) Anomers and epimers **(2marks)**

44. Describe briefly the primary structure of a protein **(4marks)**

45. List FOUR classes of enzymes **(4marks)**

46. Give FOUR biological functions of carbohydrates **(4marks)**

47. Describe any TWO reactions of the amino group of amino acids **(4marks)**

48. Give any FOUR organelles present in an animal cell **(4marks)**

49. Give the FOUR fundamental statements of modern cell theory **(4marks)**

50. Describe briefly the two classes of triglycerides **(4marks)**

SECTION C (40marks)

51. Discuss on the classification of enzymes giving the appropriate examples in each case. **(20marks)**

52. Using structural examples discuss on the classification of monosaccharides **(20marks)**

53. Describe the different classes of proteins giving examples **(20marks)**

54. (a) Discus on the classification of sphingolipids **(10marks)**

(b) Describe the structural organization of an animal cell **(10marks)**