Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF MEDICAL SCIENCES

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICAL LABORATORY SCIENCES

BMLS 13M MID

AML 4212 : CLINICAL CHEMISTRY II

SEMESTER EXAMINATION

APRIL 2014 SERIES 2 HOURS

Instructions to candidates:

This paper consists of **TWO** sections **A** and **B**
Section A –Contains MCQS, Answer **ALL** questions in **Section B**.

SECTION A – MCQs – (30marks)

1. The following are examples of exocrine glands
   a) Adrenal glands
   b) Salivary glands
   c) Pituitary glands
   d) Hypothalamus
   e) Testes

2. Essential amino acids include the following except
   a) Levecine
   b) Isoleucine
   c) Valine
   d) Phenylalanine
   e) Proline

3. Which of the following is true?
   a) Absence of phenylalanine hydroxylase presents formation of phenylalanine

b) Absence of phenylalanine hydroxylase results to formation of tyrosine
c) Phenylalanine hydroxylase is required for formation of tyrosine
d) Phenylalanine hydroxylase is required for formation of alanine
e) None of the above

4. Which one of the following is an in born error of metabolism ?
   a) Typhoid
   b) Diabetes
   c) Leukaemia
   d) Lung cancer
   e) Phenylketonuria

5. Acute phase proteins inclue the following except
   a) ¤ 1-antitrypsin
   b) C reactive protein
   c) Fibrinogen
   d) Haptoglobin
   e) Gamma globulin

6. The following are factors associated with cardiovascular diseases except?
   a) Being overweight
   b) physical inactivity
   c) Diabeters mellitus
   d) Being post menopausal
   e) High HDL levels

7. Which of the following is an interfering substances in cholesterol analysis?
   a) Lactic acid
   b) Glucose
   c) Creatinine
   d) Ascorbic acid
   e) Cholesterlol oxidase

8. The following include conjugated proteins except
   a) MEtalloproteins
   b) Lipoproteins
   c) Glycoproteins
   d) Apoprotein
   e) Phosphoprotein

9. What substance is the precursor to all steroid hormones?
   a) Fatty acids
   b) Glycerol
   c) Triglycerides
   d) Cholesterol
   e) Glucose

10. The abnormal accumulation of fats in faeces is termed as?

a) Amenorrhea
b) Liporea
c) Steatorrhea
d) Diarrhea
e) None of the above

11. When lipoprotein electrophoresis is performed which fraction migrates the fastest towards the anode
    a) LDL
    b) HDL
    c) VLDL
    d) IDL
    e) Chylomicron

12. The very low density lipoprotein primarily transports what substance?
    a) Cholesterol
    b) Chylomicrons
    c) Triglyrides
    d) Phospholipids
    e) Bile acids

13. Bencen – Jones proteinuria is a condition characterized by the urinary excretion of
    a) Kappa light protein
    b) Lammbda light protein
    c) Both kappa light protein and lambda light protein
    d) Delta light proteins
    e) Omega light protein

14. Which is the most abundant protein in plasma?
    a) Tranferrin
    b) Fibrinogen
    c) Haptoglobin
    d) Ceruloplasmin
    e) Albumin

15. What substances/s are bile acids derived from
    a) Bilirubin
    b) Fatty acids
    c) Cholesterol
    d) Triglycerides
    e) HCL

16. Which of the following tests would be included in a routine lipid profile?
    a) Triglycerides, fatty acids, chylomicrons
    b) Cholesterol, triglycerides, phospholipids
    c) HDL cholesterol, LDL cholesterol, chylomicrons
    d) Cholesterol, triglycerides, HDL cholesterol
    e) Glucose, Albumin

17. Exogenenous triglycerides are transported in plasma in what form?
    a) Phospholids
    b) Cholesteryl esters
    c) Chylomicrons
    d) Free fatty acids
    e) Carbohydrates

18. The presence for protein in urine
    a) Can increase SG
    b) Can reduce SG
    c) Can Cause diarrhea
    d) Can be detected by Hay's test
    e) Cannot be detected

19. Bilirubin couples with diazotized sulphanilic acid and
    a) Results to purple color
    b) Results to azobilirubin
    c) Results to biliverdin
    d) Results to a green color
    e) Results to haemoglobin

20. Proteins migrate during electrophoresis because they:
    a) Have peptide bonds
    b) Have an electric change
    c) Contain nitrogen
    d) Are organic compounds
    e) Are inorganic compounds

21. Biliverdin is converted to bilirubin by
    a) Hydrolysis
    b) Bacterial action
    c) Oxidation
    d) Reduction
    e) Transamination

22. The Beta-lipoprotein fraction consists primarily of which lipids?
    a) Fatty acids
    b) Cholesterol
    c) Phospholipids
    d) Triglycerides
    e) DNA

23. In serum protein electrophoresis at pH 8.6 which of the following characterizes the proteins
    a) Exhibit net negative change
    b) Exhibit net positive change
    c) Exhibit charge neutrality
    d) Migrate towards cathode
    e) Lose functional groups

24. What condition is characterized by yellow pigmentation of the skins?
    a) Javndice
    b) Hemolysis
    c) Cholestasis
    d) Kernicterus
    e) Ischaemia

25. In the condition kernicterus, bilirubin accumulates in what tissue?
    a) Brain
    b) Liver
    c) Kidney
    d) Blood
    e) Bone

26. Property that can be used to fractionate proteins include:
    a) Their peptide linkage
    b) Their ability to dissolve
    c) The length of the hydrocarbon chain electrical properties
    d) The branches in carbon skeleton
    e) None of the above

27. Gmelins nitric acid ring test for bilirubin is based on:
    a) Solubility
    b) Lowering of surface tension
    c) Oxidation of bilirubin to biliverdin
    d) Reduction of biliverdin to bilirubin
    e) Lose of functional groups in bilirubin

28. Which of the following is true of conjugated bilirubin ?
    a) Toxic
    b) Albumin bound
    c) Soluble bilirubin
    d) Globulin bound
    e) Insoluble bilirubin

29. Chylomicrons transport what substances?
    a) Cholesterol
    b) Triycerides
    c) Phospholipids
    d) Phosphates
    e) Carbonates

30. Which of the following is specific for liver function assessment?
    a) Alanine transameniase
    b) Aspartate transaminase
    c) Alkaline phosphatase

d) Hexokinase
e) Lipase

SECTION B ESSAY
(ANSWER ALL QUESTION IN THIS SECTION)

1. (a) Describe the Guthrie test **(10marks)**
(b) Describe the process of atheroselerotic plaque formation **(10marks)**

2. (a) Describe the clinical conditions associated with decreased albumin levels **(10marks)**

(b) Explain ALT and AST as markers of liver function **(10marks)**