



# TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

**UNIVERSITY EXAMINATION FOR:**

BMLS

AML 4212: CLINICAL CHEMISTRY II.

END OF SEMESTER EXAMINATION

**SERIES: APRIL 2016**

**TIME: 2 HOURS**

**DATE:** Pick Date Select Month Pick Year

## **Instructions to Candidates**

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of Choose Nochoose Sect/Quest. Attempt Choose instruction.

**Circle the correct answer in section A.**

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## **Section A**

1. Essential amino acids include the following except?
  - A. Leucine
  - B. Isoleucine
  - C. Valine
  - D. Phenylalamine
  - E. Proline
  
2. Which of the following is an alpha keto acid
  - A. Alanine
  - B. Oxaloacetate
  - C. Glutamate
  - D. Aspartate
  - E. Phenylalamine

3. When lipoprotein electrophoresis is done which fraction migrates the slowest to the anode
  - A. Chylomicron
  - B. LDL
  - C. VLDL
  - D. HDL
  - E. IDL
  
4. Which one of the following is an inborn error of metabolism
  - A. Tyrosinemia
  - B. Lung cancer
  - C. Typhoid
  - D. Diabetes
  - E. None of the above
  
5. The following are factors associated with increased risk for cardiovascular diseases except?
  - A. Elevated levels of LDL
  - B. Being female
  - C. Obesity
  - D. High blood pressure
  - E. Cigarette smoking
  
6. The following are interfering substances in cholesterol analysis except?
  - A. Ascorbic acid
  - B. Bilirubin
  - C. Triglycerides
  - D. Hemolysis
  - E. None of the above
  
7. Dietary triglycerides are transported by
  - A. Chylomicron
  - B. LDL
  - C. VLDL
  - D. HDL
  - E. IDL
  
8. Which of the following properties will a protein have at its isoelectric point?
  - A. Net negative charge
  - B. Net positive charge
  - C. Net zero charge
  - D. Mobility at pH 7.0
  - E. Ability to store genetic information
  
9. Triglycerides from the liver are transported by
  - A. Chylomicrons
  - B. LDL
  - C. VLDL
  - D. HDL

E. IDL

10. Which one of the following is true of primary amino aciduria?
- A. It occurs to infection of the liver
  - B. It occurs due to generalized renal tubular
  - C. It occurs due to protein energy malnutrition
  - D. It occurs due to inherited enzyme defect
  - E. None of the above
11. Acute phase proteins include the following except?
- A.  $\alpha$  1-antitrypsin
  - B. C reactive protein
  - C. Fibrinogen
  - D. Haptoglobin
  - E. Gamma globin
12. The very low density lipoprotein primarily transport what substance?
- A. Cholesterol
  - B. Chylomicrons
  - C. Triglycerides
  - D. Phospholipids
  - E. Bile acids
13. What substance are bile acids derived from?
- A. Bilirubin
  - B. Fatty acids
  - C. Cholesterol
  - D. Triglycerides
  - E. HCL
14. Bence Jones proteinuria is a condition characterized by the urinary excretion of what protein?
- A. Kappa heavy protein
  - B. Lambda heavy protein
  - C. Kappa light protein
  - D. Delta light protein
  - E. Omega light chain
15. The very low density lipoprotein primary transport what substance?
- A. Cholesterol
  - B. Chylomicrons
  - C. Triglycerides
  - D. Phospholipids
  - E. Bile acid

16. Bad lipoproteins refers to
- HDL
  - LDL
  - VLDL
  - Cholesterol
  - IDL
17. Secondary amino aciduria may be due to the following except
- Disease of the liver
  - Generalized renal tubular dysfunction
  - Protein energy malnutrition
  - Inborn error of metabolism
  - None of the above
18. Which of the following enzymes is produced by heart tissue
- Alanine transaminase
  - Aspartate transaminase
  - Alkaline phosphatase
  - Phenylalanine hydroxylase
  - None of the above
19. The following include conjugated proteins except?
- Metalloproteins
  - Lipoproteins
  - Glycoproteins
  - Apoproteins
  - Phosphoproteins
20. The following shows the Friedewald estimation
- $TC = VLDL - C + HDL - C + IDL - C$
  - $VLDL - C = TC + HDL - C + LDL - C$
  - $LDL - C = VLDL - C + HDL - C + TC$
  - $TC = VLDL - C + HDL - C + LDL - C$
  - $HDL - C = VLDL + TC + TC + LDL - C$
21. Which of the following tests can be used to determine presence of phenylalanine
- Berthelot reaction
  - Ictostix
  - Erchlich test
  - Hay's test
  - Guthrie test
22. Which of the following is true
- Absence of phenylalanine hydroxylase prevents formation of phenylalanine
  - Absence of phenylalanine hydroxylase results to formation of tyrosine
  - Phenylalanine hydroxylase is required for formation of tyrosine
  - Phenylalanine hydroxylase is required for formation of alanine

- E. None of the above
23. Total plasma protein maybe increase by
- A. Diarrhea
  - B. Excessive intake of water
  - C. Excessive intravenous fluid infusion
  - D. Nephrotic syndrome
  - E. Increased pulse rate
24. Non-essential amino acids include following
- A. Histidine
  - B. Leucine
  - C. Isoleucine
  - D. Valine
  - E. Phenylalanine
25. Which of the following are examples of endocrine glands
- A. Sweat glands
  - B. Salivary glands
  - C. Skin
  - D. Thyroid
  - E. Brain
26. Which of the following are examples of exocrine glands
- A. Adrenal gland
  - B. Salivary gland
  - C. Pituitary gland
  - D. Hypothalamus
  - E. Testes
27. The 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
  - D. The branches in carbon skeleton
  - E. None of the above
28. What condition is characterized by yellow pigmentation of the skin
- A. Jaundice
  - B. Hemolysis
  - C. Cholestasis
  - D. Kernicterus
  - E. Ischemia
29. The presence of 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

30. The following are functions of plasma proteins except
- A. Blood coagulation
  - B. Maintenance of homeostasis
  - C. Defense against infection
  - D. Transport of drugs
  - E. None of the above

## **Section B**

31.

(A) Describe the Guthrie test. **(10marks)**

(B) Describe the process of atherosclerotic plaque formation. **(10marks)**

32.

(A) Describe two male and three female hormonal infertile conditions. **(10marks)**

(B) Describe five parameters that are used as markers of liver function. **(10marks)**