



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Applied and Health Sciences

DEPARTMENT OF **MEDICAL SCIENCES**

DIPLOMA IN MEDICAL LABORATORY SCIENCES
(DMLS 10)

AML 2357: CLINICAL CHEMISTRY

SPECIAL/SUPPLEMENTARY: EXAMINATIONS

SERIES: February 2013

TIME: 2 HOURS

INSTRUCTIONS:

You should have the following for this examination

- *Answer booklet*

This paper consists of **TWO** sections.

Answer all questions in **Section A** and **B**. $\frac{1}{2}$ marks deducted for any wrong answer in **Section A**.

This paper consists of 5 PRINTED pages
SECTION A (40MARKS)

1. Crystals found in acidic urine includes
 - a) Uric acid
 - b) Phosphates
 - c) Ammonium urates
 - d) Calcium oxalate
 - e) Sodium urates

2. Oxidation of glucose yield the following except
 - a) H_2O_2
 - b) H_2O
 - c) H_2
 - d) Glucuronic Acid
 - e) Starch

3. Ketone bodies are associated with
 - a) Lipolysis
 - b) Impaired protein metabolism
 - c) Impaired carbohydrates metabolism
 - d) Renal failure
 - e) Liver physiology

4. Urine SG increase with the increase of
 - a) Turbidity of urine
 - b) Osmolates of urine
 - c) Urea content
 - d) pH of urine
 - e) none of the above

5. The following is/are true about zwitter ions
 - a) It is acidic ion
 - b) It is basic ion
 - c) It is an inner ion
 - d) Formed when carboxy and amine group react at isoelectric point
 - e) It has both -ve and +ve ions in it.

6. The process in which glucose formed from non carbohydrates molecules is known as:
 - a) Gluconeogenesis
 - b) Glycogenolysis
 - c) Glycogenesis
 - d) Proteogenesis
 - e) Lipogenesis

7. Which of the following coagulation factors are produced by liver
 - a) Factor V
 - b) Factor III

- c) Factor VIII
 - d) Factor II
 - e) Factor I
8. When kidney senses low blood pressure, the following factors take part in raising the blood pressure. Which are they?
- a) Thyroid hormone
 - b) Thymus tissue
 - c) Renin enzyme
 - d) Transferase enzymes
 - e) Angiotensinogen hormone
9. Which of the following is/are examples of transferase enzymes
- a) Amylase
 - b) Maltase
 - c) Transaminase
 - d) Gamma-glutamyl enzyme
 - e) Phosphatase
10. Which of the following mechanisms are included in glucose metabolism
- a) Tricarboxylic acid cycle
 - b) Transamination
 - c) Embden mayerhof
 - d) Glycogenesis
 - e) None of the above
11. The following statement(s) is/are true about insulin
- a) It is a kidney hormone
 - b) It is a panerepatic hormone
 - c) It has hypoglycemic effect
 - d) Produced by alpha cells of the kidney
 - e) Produced by Beta cells of the pancrease
12. The following pathological conditions affects serum/plasma protein. Which are they?
- a) Diabetic mellitus
 - b) Urinary tract infection
 - c) Transfusion reaction
 - d) Malnutrition
 - e) Severe diarrhea and vomiting
13. The following organs are responsible for secretion of amylase ezyme:
- a) Liver
 - b) Kidney
 - c) Salivary glands
 - d) Prostate glands
 - e) Pancrease
14. Processes which are common to all amino acids includes
- a) Hydration

- b) Deamination
- c) De-ionization
- d) Decarboxylation
- e) Transamination

15. Fats have several properties, which one(s) is/are NOT

- a) Colourless
- b) Have specific gravity of >20
- c) They are soluble in non-organic solvents
- d) They have foul smell
- e) Melting point varies to due to fatty acid constituents

16. The following procedures may tielid urea. Which are they

- a) Action of heat on CO₂ and H₂
- b) Action of heat on sodium cynate
- c) Action of heat and pressure on CO₂ and NH₃
- d) Action of heat on Ammium cyanate
- e) Action of pressure O₂ and NH₃.

17. Animals that excrete nitrogen waste in form of uric acid are known as.

- a) Amphoteric
- b) Aminoteric
- c) Uriteric
- d) Uricoteric
- e) Urinoteric

18. Negative nitrogen balance is a term used when

- a) Protein intake exceed excretion
- b) Protein excretion exceeds intake
- c) Protein catabolism is carbon
- d) Protein metabolism is impaired
- e) Bence Jones protein formed

19. What is the colour of Biliverdin ?

- a) Yellow
- b) Blue
- c) Green
- d) Urochrome
- e) Dark

SECTION B ESSAY (60MARKS) Answer all questions

1.
 - a) Briefly discuss serum Bilirubin **(10marks)**
 - b) State the THREE categories as jaundice and give expected lab results for each **(9marks)**
 - c) Name one method used to estimate serum /plasma blarubin **(1mark)**

2. Write short notes on :
- a. Non-sugar reducing substances (5marks)
 - b. Composition of urine (5marks)
 - c. Bence Jones proteins (5marks)
 - d. Phenylketonuria (5marks)
3. With the aid of a well labeled diagram describe urine formation (20marks)