



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

UNIVERSITY EXAMINATION FOR:

BMLS 15S REGULAR

AML 4201: CLINICAL CHEMISTRY I

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: Choose hours **HOURS**

DATE: Pick Date **Dec 2016**

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **TWO** Section(s). Attempt **ALL** questions.

Circle the correct answer in section A.

Section A

1. What is the name of the condition of low Na⁺ (sodium) levels in the ECF?
 - a. Hyperkalemia
 - b. Hypokalemia
 - c. Hypernatremia
 - d. Hyponatremia
 - e. Hyperemesis
2. The bicarbonates
 - a. are anions of the intra cellular fluids
 - b. are anions of the extracellular fluid
 - c. are cations of the extra cellular fluid
 - d. have a normal plasma range of 205-235 mmol / l
 - e. have a normal plasma range of 205 - 255 mmol / l
3. The normal range for potassium in blood is
 - a. 135-145 mmol/ l
 - b. 3.8 – 5.0 mmol/l

- c. 6.8 – 10.0 mmol/l
 - d. 5.0– 6.8 mmol/l
 - e. 2.0 – 4.0 mmol/l
4. A blood pH of 7.0 would indicate the following
- a. nothing it's normal
 - b. acidosis
 - c. alkalosis
 - d. extreme alkalosis
 - e. None of the above
5. Cerebrospinal fluid and fluid within joints classified as _____
- a. Intracellular
 - b. extracellular
 - c. Transcellular
 - d. Intravascular
 - e. Intradermal
6. Which body compartment contains the greatest relative amount of water?
- a. Extracellular
 - b. Intracellular
 - c. Plasma
 - d. Transcellular
 - e. Intradermal
7. Urine preservatives include the following except
- a. Boric acid
 - b. HNO_3
 - c. Sodium carbonate
 - d. Hydrochloric acid
 - e. Copper sulphate solution
8. What is the term given to a decrease in urine volume
- a. Anuria
 - b. Renal dysfunction
 - c. Oliguria
 - d. Polyuria
 - e. Retinopathy
9. What is the term given to the absence of urine
- a. Anuria
 - b. Renal dysfunction
 - c. Oliguria
 - d. Polyuria
 - e. Retinopathy
10. Which of the following analytes is formed from the breakdown of erythrocytes?
- a. Bilirubin
 - b. Melanin
 - c. Carotene
 - d. Urochrome

- e. Creatine
11. The concentrating ability of the kidneys may be measured by performing which of the following urine tests?
- Sodium
 - Creatine
 - Volume
 - Specific gravity
 - Glucose
12. Positive results on benedicts test would be obtained if the urine sample contained which of the following
- Urea
 - Potassium
 - Glucose
 - Ascorbic acid
 - DNA
13. Which one of the following can be used to determine specific gravity of urine
- T S meter
 - Osmometer
 - Speedometer
 - Ion selective electrode analyzer
 - Centrifuge
14. Under normal circumstances _____ is the greatest source of acidity in the body
- Carbon dioxide
 - Lactic acid
 - Oxidation of fatty acids
 - Hydrolysis reactions
 - Dehydration reaction
15. What is the expected pH range of a normal blood?
- 7.0 to 8.0
 - 3.5 to 9.0
 - 7.45 to 8.5
 - 7.35 to 7.45
 - to 2.0
16. Which of the following is not involved in the maintenance of proper pH of the body fluids
- the operation of buffers in the blood
 - the control of respiratory ventilation
 - the active secretion of H⁺ into filtrate by the kidney tubule cells
 - None of the above are correct.
17. Which of the following would occur from an increased capillary hydrostatic pressure?
- Dehydration
 - hypotonic hydration
 - edema
 - diabetes mellitus
 - diabetes insipidus

18. Which one of the following is an anion?
- Magnesium
 - sodium
 - bicarbonate
 - Potassium
 - zinc
19. What hormone controls water reabsorption from distal convoluted tubule?
- Aldosterone
 - ADH
 - Insulin
 - Glucagon
 - Testosterone
20. Which of the following processes is not involved in urine formation
- Glomerular concentration
 - Tubular specialization
 - Tubular differentiation
 - Tubular secretion
 - None of the above
21. Which one of the following enzymes is involved in the principle of blood glucose estimation?
- Glucose reductase
 - Glucose oxidase
 - Hexokinase
 - Catalase enzyme
 - None of the above
22. Which of the following terms refers to a blood sugar test done after period of no food intake?
- Random blood sugar
 - Post prandial blood sugar
 - Fasting blood sugar
 - Glucose tolerance test
 - None of the above
23. The end product of protein metabolism in man is?
- Bilirubin
 - Urea
 - Uric acid
 - Creatine
 - None of the above
24. Which of the following substances result to bilirubin when broken down?
- Keratin
 - Chitin
 - Myoglobin
 - Albumin
 - Starch
25. What is the term given to tests which detect substances without determining their actual amounts
- Qualitative tests
 - Quantitative tests

- c. Titration tests
 - d. Precipitation tests
 - e. None of the above
26. Synovial fluid is classified specifically as _____
- a. Intracellular
 - b. extracellular
 - c. Transcellular
 - d. Intravascular
 - e. Intra-dermal
27. What does the term glycosuria mean?
- a. Glycogen in urine
 - b. Haemoglobin in urine
 - c. Glucose in blood
 - d. Glycogen in urine
 - e. Glucose in urine
28. Which of the following conditions is associated with pre-renal elevated urea levels
- a. Vomiting
 - b. Jaundice
 - c. Glomerulonephritis
 - d. Nephrotic syndrome
 - e. Renal tumours
29. Respiratory acidosis is seen in the following
- a. an increase in rate and depth of breath
 - b. a decrease in rate and depth of breath
 - c. excessive administration of sodium bicarbonate
 - d. administration of substances whose metabolism produces H⁺
 - e. Alcoholism
30. A decrease in urine volume is termed
- a. Anuria
 - b. Renal dysfunction
 - c. Oliguria
 - d. Polyuria
 - e. Retinopathy

Section B

31. Describe the following
- a. Oral glucose tolerance test (10 marks)
 - b. Type 1 Diabetes Mellitus (10 marks)
32. Describe the following
- a. Describe respiratory acidosis (10 marks)
 - b. Describe the diseases associated with pre renal elevation of blood urea levels (10 marks)