



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Applied and Health Sciences

DEPARTMENT OF MEDICAL SCIENCES

CERTIFICATE IN MEDICAL LABORATORY SCIENCES
(CMLS 12J)

AML 1210: CLINICAL CHEMISTRY II

SPECIAL/SUPPLEMENTARY: EXAMINATIONS

SERIES: OCTOBER 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**. ½ marks deducted for any wrong answer in **Section A**.

This paper consists of 7 PRINTED pages
SECTION A (40MARKS)

1. Ova of schistosoma haematobium is mostly seen in:-
 - a) Mid-stream urine
 - b) First morning sample
 - c) Random or spot urine sample
 - d) Terminal urine sample

2. Cells in urine includes the following except:
 - a) White blood cells
 - b) Sperm cells
 - c) Bilirubin
 - d) Red blood cells

3. Chemical characteristics of urine during analysis include
 - a) pH
 - b) Crystals
 - c) Proteins
 - d) Casts

4. Urobinnogin includes the _____ characteristics of a urine
 - a) Chemical
 - b) Bacterial
 - c) Physical
 - d) None of the above

5. Urinalysis is normally performed in the laboratory to:-
 - a) For leisure
 - b) Routine medical examination
 - c) Make the laboratory technician busy
 - d) Make money

6. Epithelial cells can be
 - a) Transitional
 - b) Squamous
 - c) Waxy
 - d) Hyalime

7. Alkaline phosphatase enzyme can be measured in serum or plasma to determined the disease of
 - a) Heart
 - b) Pancrease
 - c) Renal
 - d) Small intestines

8. Glycogenesis can only take place in the presence of
 - a) Insulin
 - b) Glucagon
 - c) HExokinase
 - d) Phosphrylase

9. Urine sediments can contain the following sediments. Which one is not a crystal found in these sediments
- Hyaline
 - Calcium oxalate
 - Tripple phosphate
 - Cystine
10. Detoxificaiton of drugs and toxic substances is done through
- Hydrolysis
 - Proteolysis
 - Osmosis
 - Oxidation
11. Plasma proteins includes the following except
- Globulin
 - Albumin
 - Fibrinogen
 - Urobilinogen
12. Which of the following are functions of the liver:-
- Lipid metabolism
 - Respiration
 - Multiplication / Reproduction
 - Carbohydrates metabolism
13. Serum or plasma albumin levels are mainly measured to investigate
- Cardiac failure
 - Anaemia
 - Liver diseases
 - Pancreatitis
14. Reduction in plasma or serum total proteins may be due to:-
- Malabsorption in chronic pancreatitis
 - Haemocorcentration following shock, severe vomiting and diarrhoeae
 - Decrease in body needs
 - None of the above
15. Qualitative chemical testing in urinalysis involves:-
- Proteins
 - Cells
 - Casts
 - Bacteria
 - Cholesterol
16. A reduted plasma or serum creatimine may be caused by:-
- Renal disease
 - Diet
 - Dehydration

- d) Muscle waisting
17. The presence of ketones in urine may be due to the following condition except
- Carbohydrate starvation
 - Severe diarrhea
 - Persistent vomiting
 - Diabetes insipidus
18. Urine can be preserved using the following chemical
- Heparin
 - Fluoride
 - EDTA
 - Thymol
19. Which of the following is a physiological factor which affects specific gravity of urine
- Wearing
 - Glomerulonephritis
 - Pyelonephritis
 - Cystitis
20. Hepatitis is a common disease of the
- Spleen
 - Pancreas
 - Liver
 - Heart
21. Enzymatic activities can be interfered with by the following factors:
- Temperature
 - Measure
 - Working area
 - Humidity
22. The main anions found in the body are:-
- Chloride
 - Magnesium
 - Bicarbonate
 - Lithium
23. Low potassium levels may be obtained due to :-
- Poor vein puncture
 - Metabolic and respiratory alkalosis
 - Sample left for long time without plasma or serum being separated
 - Whole blood reinvigorated before it is centrifuged
24. Urine deposit may contain the following amino acid crystal except
- Thiamine
 - Tyrosine
 - Cystine
 - Leucine

25. Water from the body can be lost through
- Sweat
 - Taking some fluids
 - Eating food
 - Expired air
26. Over production of bilirubin may be due to:-
- Typhoid infection
 - Renal failure
 - Severe plasmodium infection
 - Brucellosis
27. Liver disorder can be investigated by performing
- Serum or plasma creatinine
 - Serum of plasma potassium
 - Serum of plasma sodium
 - Serum or plasma albumin
28. Which of the following blood vessels carries blood out of the glomerulus
- Efferent arteriole
 - Afferent arteriole
 - Inferior vena cava
 - Aorta
29. A normal urine colour may be:-
- Pale yellow
 - Redbrown
 - Colourless
 - Amber
30. Normal urine sediment may contain the following except
- Few sperm cells in male patients
 - White blood cells casts
 - 3 puscells per high power field in males
 - 5 puscells per high power field in males
31. Fixed specific gravity is commonly seen in
- Diabetes mellitus
 - Diabetic insipidus
 - Liver disease
 - Severe renal damage
32. Which part of the nephron most water is being absorbed
- Proximal convoluted tubules
 - Distal convoluted tubules
 - Loop of Henle
 - Bowman's capsule

33. Increase in sodium levels may be due to _____ in the body
- a) Surgery or severe accidents
 - b) Sever vomiting
 - c) Treatment with antidiretics
 - d) Drugs effects
34. Acid-base balance can be brought by the following except
- a) Metabolic acidocis
 - b) Respiratory alkalosis
 - c) Metabolic alkalis
 - d) None of the above

SECTION B

(Answer all questions)

1. (a) Define the word electrolyte and give examples as used in clinical chemistry **(5marks)**
(b) Briefly describes the Bence-Jones protein **(5marks)**
(c) Briefly discuss the chemical composition of urine sample. **(10marks)**
2. (a) List any TEN constituents of urine sediments **(10marks)**
(b) Describe the urine formation **(10marks)**
3. Discuss the term urinalysis **(20marks)**