TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Applied and Health Sciences

DEPARTMENT OF MEDICAL SCIENCES

DIPLOMA IN MEDICAL LABORATORY SCIENCES
(DMLS 12 M)

AML 2211 : CLINICAL CHEMISTRY III

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 **6** **PRINTED** pages*

SECTION A (40MARKS)

1. The following are amino acids except
- **a)** Cystein
- **b)** Cystin
- **c)** Cistern
- **d)** Sequesterene

2. Machines are part of occupation in a clinical chemistry laboratory, which one is out:
- a) Colorimetre
- b) Spectrophotometre
- c) Flow cytometre
- d) Coomasie blue

3. The following is false about spectrophotometry
- a) Spectrophotometric analyses usually use the beer Lambert's law
- b) A good spectrophotometer is one that is highly sensitive and can measure ranges of 10-5m
- c) Lambert's law states that the intensity of a ray of monochromatic light decreases with increasing concentration of the absorbing medium
- d) In the electromagnetic spectrum, ultraviolet region ranges between 200 – 400nm wavelength which is very essential in absorption of substance

4. The following statements is/are true
- a) Proficiency testing is used to check the competency of a laboratory technologist
- b) A daily quality control chart is absolutely similar to the OCR control chart
- c) A daily quality control chart gives machines calibration over a period of time just like the OCV control chart.
- d) A daily quality chart can be used to determine the working ability of a machine overtime.

5. The ability of a diagnostic test to detect a disease which is present is
- a) Specificity
- b) Sensitivity
- c) Accuracy
- d) Precision

6. The ability of a diagnostic test to reflect absence of the disease with those that are disease free
- a) Specificity
- b) Sensitivity
- c) Accuracy
- d) Precision

7. The following are types of electrophoresis except
- a) PAGE
- b) Agarose gel electrophoresis
- c) Paper electrophosis

d) Foil electrophosis

8. Metabolic pathways common to all amino acids
   a) Dehydroxylation
   b) Decarboxylation
   c) Tranferation
   d) Oxidation
   e) Amination

9. Creamy with urine is observed in clients with
   a) LoaLoa
   b) Candy (sweet) taking
   c) Bancroftion filariasis
   d) Schistosoma haematobium

10. Which of the following is an indication of a renal tubular defect UTI when observed in urine
   a) Calcium oxalate
   b) Spermatozoa
   c) Hyaline crystals
   d) Uric acid crystals

11. Ferric chloride react with phenylpyruvate in urine to produce a green colour in what condition;
   a) Alkaptonuria
   b) Phenylketonuria
   c) Proteinuria
   d) Glucosuria

12. Renal aminoaciduria is best described as;
   a) Raised amino acid levels in plasma overwhelm the reabsorptive capacities of the aubular cells
   b) Lack of Alanine transaminase to catalise transamination
   c) Metabolism of amino acids in the kidney
   d) Defective tubular reabsorption reducing plasma amino acid levels

13. Overflow aminoaciduria
   a) Raised plasma amino acid levels rendering the proximal convoluted tubule enable to reabsorb.
   b) An example of amino acid catalytic process
   c) Transamination in action
   d) Transport of amino acid across cell membranes can never result to it

14. 5% sodium hydrogen carbonate is employed in
   a) Tryptic activity test
   b) Occult test
   c) Okokit
   d) Haema test

15. Trypsin is responsible for the
   a) Conversion of chymotrypsin to trypsin
   b) Splitting of oriterokinase to active molecule
   c) Conversion of procarboxypetidase to carboxpeptidase

d) Breakdown of peptides

16. Cholecystokinin:
    a) Stimulates pancreatic enzyme release
    b) Causes of bile release from the gall bladder
    c) Absorbs bile
    d) Digests fats

17. Stool can be hard
    a) Because it has to be hard
    b) Lacked of ADH
    c) Infection of schistosoma mansoni
    d) Skatole and indole group

18. Saliva contains the following except
    a) Maltose
    b) Ptyalin
    c) Musin
    d) Minerals

19. The following are non-parenteral stimulants for gastric juice
    a) Gruel
    b) Water
    c) Pentagastrin
    d) Histamine

20. The following are fat soluble vitamins
    a) A
    b) B_6
    c) C
    d) B_{12}

21. A switter ion
    a) Has both opposite charges on one hydrogen atom
    b) Is amphoteric in nature
    c) Has 2 COOH groups
    d) Has 2 amino groups

22. Proteins are made up of chains of
    a) Aminoacid
    b) Albumin
    c) Globulins
    d) Carboxyl groups & amino groups

23. 40ml of 80mg/dl glucose standard is diluted to one litre, the resulting solution would be
    a) 32mg/dl
    b) 3.2mg/dl
    c) 3.2mg/l

d) 50mg/dl

24. Proteins migration during electrophoresis is possible because they;
    a) Contain nitrogen
    b) Are organic compounds
    c) Complexed with buffer
    d) Are ionic

25. CSF glucose
    a) Is lower than glucose in blood
    b) Is higher than blood glucose
    c) Similar to blood glucose levels
    d) Cannot be determined by copper reduction method

26. In colorimetric analysis the blank reagent is important since it:
    a) Has a known concentration
    b) Monitors the potency of reagents
    c) Help zero the colorimeter
    d) Monitor the accuracy of the technique

27. Heating stool suspension before carrying occult test
    a) Activates the reaction
    b) Activates enzymes
    c) Provide optimum temperature for the reaction
    d) Inactivates the enzymes

28. Pathological increase in alkaline phosphatase is found in ;
    a) Coronary heart disease
    b) Pregnancy
    c) Bone disease
    d) Muscle wasting

29. The following are apparatus used in SG determination
    a) Urinometre
    b) Colorimeter
    c) Refractometre dilator
    d) Spectrophotometre

30. Useful clinical information in amino acid is obtained in which of the following analytical methods
    a) Chromatography
    b) Electrophoresis
    c) Chemical test
    d) Ultracentrifugation

31. Colorimetric law which compares transmittance with concentration by making the light path constant
    a) Beer's law
    b) Lambert's law

c) Chateliers principle
d) Daltons

32. The volume of a 0.1MNaOH solution required to neutralize 10ml of 0.4m HCl solution is
a) 0.4ml
b) 40ml
c) 10.0ml
d) 0.1ml

33. The conditions which are likely to lead to ketosis are/is:-
a) Severe cough
b) Carbohydrate starvation
c) Anaemia
d) Polyyuria

34. Rothera's test utilizes
a) 10% ferric chloride
b) Ammonium sulphate
c) Pyruvic acid
d) Sodium nitroprusside

35. When 30ml of 180mg/100ml glucose solution is diluted to a litre the concentration of the new solution
a) 540mg/100ml
b) 5.4mg/100ml
c) 5.4mmol/l
d) 30mg/100ml

36. Bile acids are conjugated in the liver by
a) Bilirubin
b) Uridyldiphosphate glucoronyl transferase
c) Amino acid
d) Gluconic acid

37. Soluble bilirubin is
a) Non toxic
b) Unoconjugated
c) Bound to albumin
d) Free in plasma

38. Alkaptonuria is characterized
a) Excretion of homogentisic acid in urine excretion of homogentisic acid in urine
b) Presence of phenylketones in urine
c) Presence of tyrosine in urine
d) Presence of pyruvates

39. The endocrine function of the pancrease is
a) Bilirubin
b) Cholecystokinin

c) Glucagon
d) Amylase

40. Anuria may be due to the conditions below
a) Hypotunction of ADH
b) Extreme cold
c) Hereditary causes
d) Incompartible blood transfusion

SECTION B

1. Briefly explain the collection and processing of cerebrospinal fluid from the patient and the clinical chemistry laboratory respectively . **(10marks)**

2. Is quality assurance necessary in the laboratory performance and management defend your response **(10marks)**

3. Prepare a protein calibration curve. **(10marks)**