



**TECHNICAL UNIVERSITY OF MOMBASA**

---

**FACULTY OF APPLIED AND HEALTH SCIENCES**

**DEPARTMENT OF MEDICAL SCIENCES**

**UNIVERSITY EXAMINATION FOR:**

**DMLS**

**AML 2309: CLINICAL CHEMISTRY III.**

**END OF SEMESTER EXAMINATION**

**SERIES: AUG 2019**

**TIME: 2 HOURS**

**DATE:**

**Instructions to Candidates**

You should have the following for this examination

*-Answer Booklet, examination pass and student ID*

This paper consists of sections A and B. Attempt all sections.

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

---

**Section A (40 Marks)**

1. Which enzyme's activity is determined by a test based on liquefaction of gelatin?
  - A. Amylase
  - B. Trypsin
  - C. Lipase
  - D. Pepsin
2. Which of the following is not an occult test for stool in the laboratory ?
  - A. Clinitest
  - B. O-tolidine test
  - C. Phenolphthalein test
  - D. Guaiac test

3. Turbidity in cerebral spinal fluid may be due to the following except:-
  - A. Presence of Leucocytes
  - B. Presence of Bacteria
  - C. Presence of glucose
  - D. Elevated levels of protein
  
4. A clot in cerebral spinal fluid may be due to the following :
  - A. Subarachnoid hemorrhage
  - B. Heart attack
  - C. Pyogenic meningitis
  - D. Increased levels of protein
  
5. Which one of the following is not a disorder of amino acid metabolism?
  - A. Maple syrup urine disease
  - B. Multiple myeloma
  - C. Homocystinuria
  - D. Nonketotic hyperglycinemia
  
6. Which one of the following is not an essential amino acid ?
  - A. Leucine
  - B. Cysteine
  - C. Lysine
  - D. Valine
  
7. Which one of the following is a carcinogenic compound found in the laboratory?
  - A. Sulphuric acid
  - B. Hydrochloric acid
  - C. O-tolidine
  - D. Potassium chloride
  
8. Which one of the following can be used to measure the exact volume of solutions in the laboratory?
  - A. Beaker
  - B. Flask
  - C. Volumetric pipette
  - D. Weighing balance
  
9. Which of the following is a pre analytical error?
  - A. Wrong unit of measure
  - B. Wrong method for analysis
  - C. Wrong specimen for analysis
  - D. Wrong calculations
  
10. Which one is the anticoagulant of choice in clinical chemistry?
  - A. Heparin
  - B. EDTA
  - C. Citrate

- D. Oxalate
11. What is used to prepare standard solutions?
- Analar reagents
  - General purpose reagents
  - Master solutions
  - Lyophilized reagents
12. Which of the following is true about solution?
- A mixture of solvent and water
  - A mixture of solvent and solute
  - A mixture of solvent and saline
  - A mixture of solute and solute
13. Which reagent is normally used in manual estimation of cerebral spinal fluid protein?
- Concentrated nitric acid
  - 3% Trichloroacetic acid
  - Bromocresol green (BCG)
  - Albustix
14. What is true about quality control samples?
- Supervisors observe staff when quality control materials are unavailable
  - Quality control samples should be run once a week
  - Quality control samples should be run alongside the test sample at all times
  - Quality control samples should be run using special reagents set a side for this purpose
15. When receiving a specimen in the laboratory, the following information must be known Except:-
- Age of the patients
  - Sex of the patient
  - Weight of the patient
  - Diagnosis of the patient
16. The following statement is TRUE about a blood stained CSF specimen:
- Refrigerate overnight and use
  - Recommended for cell count analysis
  - Can be used for biochemical test
  - Should be discarded and get another sample
17. What is the name given to an analytical technique that gives results as the actual concentration of an analyte in the sample?
- Qualitative
  - Quantitative
  - Titration

D. Precipitation

18. The following must be considered when selecting equipment for analytical work:
- A. Packaging
  - B. Name of the country of origin
  - C. Number of tests carried out in the laboratory
  - D. Weather conditions in the country of use.
19. Which of the following refers to how close together are multiple measurements of the same sample?
- A. Accuracy
  - B. Precision
  - C. Sensitivity
  - D. Mean
20. Measuring the closeness to the true value of a substance is aiming at achieving:
- A. Precision
  - B. Reliability
  - C. Accuracy
  - D. Clarity
21. Which one of the enzymes is not from the composition of the gastric juice?
- A. Pepsin
  - B. Lipase
  - C. Trypsin
  - D. Rennin
22. Which one is a product of protein hydrolysis?
- A. Lactose
  - B. Fatty acids
  - C. Glycerol
  - D. Peptides
23. Statistical errors may be random of:
- A. Accurate
  - B. Intentional
  - C. Systematic
  - D. Repeatable
24. What is the recommended minimum number of determinations on one sample for preparing a quality control chart?
- A. 2
  - B. 10
  - C. 20
  - D. 40

25. All of the following are associated with aminoaciduria except:
- A. Cystinuria
  - B. Leukaemia
  - C. Phenylketonuria
  - D. Maple syrup disease
26. It is a rare familial disease with early fatal outcome producing cerebral degeneration. Which of the following conditions is described here?
- A. Diabetes mellitus
  - B. Fanconi's syndrome
  - C. Cerebral meningitis
  - D. Phenylketonuria
27. Which of the following can describe steatorrhoea?
- A. Serum in stool
  - B. Lactic acid in stool
  - C. Carbohydrate in stool
  - D. Fats in stool
28. What function does bile have in the gastrointestinal system?
- A. Carbohydrate absorption
  - B. Lipid absorption
  - C. Protein digestion
  - D. Calcium absorption
29. Pancreatic fibrosis may be diagnosed by faecal assay to check for an enzyme activity on a substrate of:
- A. Fatty acid
  - B. Protein
  - C. Carbohydrate
  - D. Gel
30. What is the important time for the test of phenylketonuria to be started in urine?
- A. Shortly after birth
  - B. Before marriage
  - C. Shortly after puberty
  - D. Before school age
31. What must not be found in the CSF of a normal person ?
- A. Urea
  - B. Protein
  - C. Rbc
  - D. Wbc

32. Which procedure is performed to collect CSF from a patient?
- A. Spinal puncture
  - B. Vertebrae puncture
  - C. Lumbar puncture
  - D. Normal puncture
33. Which test is used to establish increased globulin fraction in CSF?
- A. Pandy test
  - B. Gerhard's test
  - C. Benedict's test
  - D. Haematest
34. Which one of the following will not request for gastric analysis?
- A. Septic ulcer
  - B. Peptic Ulcer
  - C. Gastric Ulcer
  - D. Duodenal Ulcer
35. Which one of the conditions is associated with pernicious anaemia?
- A. Achlorhydria
  - B. Hypochlorhydria
  - C. Hyperchlorhydria
  - D. Hypoacidity
36. Which one is referred to as free acid in gastric analysis?
- A. Lactic acid
  - B. Acetic acid
  - C. Amino acid
  - D. Hydrochloric acid
37. Oral stimulants of the gastric juice production include the following, EXCEPT:
- A. Sugarless tea
  - B. Butterless toast
  - C. Fresh milk
  - D. Gruel
38. Which one of the following is not a composition of a normal gastric juice?
- A. Hormones
  - B. Enzymes
  - C. Mucus
  - D. Acids
39. What is another name for parietal cells in the gastric mucosa?

- A. Chief cells
- B. Gastric cells
- C. Mucosal cells
- D. Oxyntic cells

40. Which one of the following is not a composition of a normal stool.
- A. Cellulose fibres
  - B. Acid
  - C. Starch granules
  - D. Mucus

**SECTION B (60 Marks)**

41. Discuss quality Assurance and quality control in clinical chemistry laboratory **(20 marks)**
42. (a) Describe the normal composition of Lumbar cerebral spinal fluid(CSF) **(10 marks)**
- (b) Describe the normal composition of Gastric juice. **(10 marks)**
43. Write short notes on: **(Each 5marks)**
- (i) Stool occult blood
  - (ii) Pandy test
  - (iii) Pathological conditions leading to steatorrhea.
  - (iv) List five essential and five non-essential Amino Acids .