



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 one of the following will lead to maple syrup urine disease?
 - A. Lipids
 - B. Amino acids
 - C. Carbohydrates
 - D. Vitamins

2. One method of measurement of trypsin activity involves:
 - A. Phosphatase analysis
 - B. Occult blood detection
 - C. Fecal fat analysis
 - D. Liquefaction of gelatin

3. Which one of the following conditions is an indicative of extraction of homogentisic acid in urine?
 - A. Cystinuria
 - B. Alkapton
 - C. Fat in urine
 - D. Glucosuria

4. What is the final product of amino acid metabolism in man?
 - A. Uric acid
 - B. Urea
 - C. Peptide
 - D. Creatinine

5. If the pH of a solution is 5.0, the solution is said to be:
 - A. Neutral
 - B. Basic
 - C. Alkaline
 - D. Acidic

6. Which one of the following is/are the sugar(s) in Nucleic acid ?
 - A. Ribose or Deoxyribose
 - B. Glucose or Fructose
 - C. Galactose
 - D. Desoxyglucose

7. The following is contained in a 0.01N chloride standard in 1 litre:
 - A. 35.5mg of NaCl
 - B. 585mg of NaCl
 - C. 58.5mg of NaCl
 - D. 355mg of NaCl

8. Which of the following is not a laboratory occult test for stool?
 - A. Clinitest
 - B. O-tolidine
 - C. Phenolphthalein
 - D. Guaiac

9. Which of the following is a preanalytical error?

- A. Wrong unit of measure
- B. Wrong method for analysis
- C. Wrong specimen for analysis
- D. Wrong calculations

10. Measuring the closeness to the true value of a substance is aiming at achieving:

- A. Precision
- B. Reliability
- C. Accuracy
- D. Clarity

11. Which of the following can simply describe steatorrhoea?

- A. Serum in stool
- B. Lactic acid in stool
- C. Carbohydrate in stool
- D. Fats in stool

12. Which test is used to establish increased globulin fraction in CSF?

- A. Pandy test
- B. Gerhardt's test
- C. Benedict's test
- D. Haematest

13. Ethylene diamine tetracetic Acid (EDTA) acts as an anticoagulant by:

- A. Precipitating Ca^{2+}
- B. Ionizing Ca^{2+}
- C. Chelating Ca^{2+}
- D. Removing Thrombin

14. Ultra micro techniques usually use samples of less than:

- A. 100 μl
- B. 10 μl
- C. 1 μl
- D. 0.5 μl

15. Why specimens are supposed to be centrifuged with the stoppers (caps) in place?

- A. To prevent aerosolization of infectious particles
- B. Prevent haemolysis
- C. Enhance proper mixing
- D. Ensure balancing

16. Which of the following assess a quality data?

- A. Standard solution
- B. Accuracy
- C. Equipment
- D. Specimen

17. Which of the following is essential element of a good quality assurance program?

- A. Commitment
- B. Facilities and resources
- C. Technical competence
- D. All the above

18. Trysin activity can be measured by observing:

- A. Liquefaction of gelatin
- B. Change in viscosity
- C. Hydrolysis of phenylphosphate
- D. Formation of carbondioxide

19. Which of the following appearance of CSF is described as Xanthochromic?

- A. Bloody
- B. Yellow
- C. Green
- D. Turbid

20. Compared with blood, normal CSF has:

- A. Less all anions
- B. Less urea
- C. Less chlorides
- D. Less glucose

21. Which one of the following describes the chlorides in cerebrospinal fluid?

- A. Less concentration than in serum,
- B. Not detectable
- C. Present only in abnormal fluid

D. More concentrated than in serum

22. Pyogenic meningitis has a likely hood of rendering CSF:

- A. Turbid
- B. Yellow
- C. Bloody
- D. Green

23. Between which vertebrae of the spinal bone is lumbar puncture procedure performed?

- A. 2nd and 3rd
- B. 3rd and 4th
- C. 4th and 5th
- D. 5th and 6th

24. Which one of the conditions can not be diagnosed by examination of CSF sample?

- A. Pyogenic meningitis
- B. Cerebral haemorrhage
- C. Acute pneumonia
- D. Tuberculous meningitis

25. Which one of the following is an appearance for normal CSF?

- A. Turbid
- B. Clear and Colourless
- C. Yellowish
- D. Slight bloody

26. Which one of the following refers to free acidity in gastric analysis?

- A. Hydrochloric Acid
- B. Lactic acid
- C. Butyric acid
- D. Acetic acid

27. "Coffee grounds" appearance is a description of digested blood in the gastric juice. What may be the cause of this?

- A. Hunger
- B. Thalassaemia
- C. Inter-gastric bleeding
- D. Extreme thirst

28. What is a result of conversion of pepsinogen in the presence of HCl?
- A. Pepsin
 - B. Rennin
 - C. Lipase
 - D. Weak acid
29. Which one of the following together with amino are compulsory chemical groups in every amino acid molecule?
- A. Hydroxyl group
 - B. Carboxyl group
 - C. Diamine group
 - D. Glycosidic group
30. Which one is a by-product of the condensation of amino acid molecules?
- A. Hydrogen
 - B. Oxygen
 - C. Carbon dioxide
 - D. Water
31. Which one of the following are building blocks for protein ?
- A. Amines
 - B. Globulin
 - C. Amino acids
 - D. Albumin
32. Which one of the following is an example of alkaptons which are found in Alkaptonuria condition?
- A. Homogentisic acid
 - B. Alloitonic acid
 - C. Pyruvic acid
 - D. Hyaluric acid

33. Which one of the following may explain automation in clinical chemistry?
- A. Is mechanization of an analytical process
 - B. Improves precision and accuracy
 - C. Does not use conventional methods
 - D. It is very cheap to maintain
34. Which one of the following is a method for analysis in clinical chemistry laboratory that gives results as an indication of presence or absence of substance?
- A. Quality control
 - B. Qualitative analysis
 - C. Quantitative analysis
 - D. Standardization
35. At what temperature should a separated serum or plasma be placed for future analysis?
- A. 4 °C
 - B. -20 °C
 - C. Room temperature
 - D. -70 °C
36. Which one of the following is a good source of quality control material?
- A. Human sera
 - B. Animal sera
 - C. Analar reagent
 - D. Bacteria
37. Which one of the following can determine accuracy and precision in an analytical method?
- A. Standard solution
 - B. Reference material
 - C. QC material
 - D. Analar reagent
38. Which one of the following is not a normal content of the gastric juice
- A. Enzymes

- B. Mucus
- C. Intrinsic factor
- D. Blood

39. Which one of the following is a parenteral stimulant of the gastric mucosa?

- A. Insulin
- B. Oxytocin
- C. Coffee
- D. Histamine

40. Which one of the following is not a characteristic of quality reagent kit?

- A. Expiry date
- B. Analytical procedure
- C. Friendly packaging
- D. Identity of a local agent

SECTION B : (60MARKS)

41. Discuss cerebral spinal fluid (CSF) under the following topics: **(20 Marks)**

- (I) Collection of CSF
- (II) Laboratory Analysis
- (III) Clinical significance of the CSF diagnosis

42.(a) Briefly discuss stool occult blood in the laboratory **(10 marks)**

(b) Discuss feecal fat and the medical conditions leading to increased levels of feecal fat. **(10 marks)**

43. Write short notes on the following: **(each 5 marks)**

- (I) Differences between qualitative and quantitative analyses
- (II) Nonne – Apelt Test
- (III) Disorders of Amino Acid metabolism
- (IV) Normal composition of Gastric Juice