



# TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

**UNIVERSITY EXAMINATION FOR:**

DIPLOMA IN MEDICAL LABORATORY SCIENCES

AML 2208 : MEDICAL BACTERIOLOGY III

END OF SEMESTER EXAMINATION

**SERIES:** AUGUST 2019

**TIME:** 2 HOURS

**DATE:** Pick Date Aug 2019

## 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.**

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## Section A

1. Swarming bacteria colonies isolated from milk are most likely to be?

- a) Klebsiella
- b) Streptococcus
- c) Proteus
- d) Citrobacter

2. Bacillary diarrhea is caused by?

- a) Staphylococcus aureus
- b) Vibrio cholerae
- c) ETEC
- d) Shigella

3. Identification of bacteria according to their somatic antigen is?
- a) Phage typing
  - b) Biotyping
  - c) Serotyping
  - d) Serology
4. The non-selective medium used for isolation of *Staphylococcus* is known as?
- a) Mannitol Salt agar
  - b) MacConkey agar
  - c) Nutrient agar
  - d) Blood agar
5. Colonies of *Escherichia coli* in EMB agar appear as?
- a) Pink colonies
  - b) Pale colonies
  - c) Mucoid blue colonies
  - d) Blue metallic colonies
6. Enterococci is the best Indicator for fecal contamination of the following samples?
- a) Distilled water
  - b) Salty water
  - c) Fresh water
  - d) Mineral water
7. Fungal toxins detected in milk are known as?
- a) Shiga toxins
  - b) Vertoxins
  - c)  $\beta$ -Lactamase
  - d) Mycotoxins
8. Which of the following medium is used for total viable count of bacteria?
- a) BGLBB
  - b) SPC agar
  - c) TCBS
  - d) Blood agar

9. Which of the following equipment is used to trap gas in MacConkey broth cultures?

- a) Micropipette
- b) Test tube
- c) Crack in TSI
- d) Durham tubes

10. The following will affect the milk reductase test except?

- a) Bacterial spores
- b) Number of bacteria
- c) Oxygen
- d) Light

11. Enterotoxin found in canned beef is most likely to be produced by?

- a) Pseudomonas
- b) Campylobacter
- c) Clostridium
- d) Hepatitis B

12. Gram stained yeast cells will appear as?

- a) Non budding pink cells
- b) Green cells
- c) Budding pink cells
- d) Budding Blue cells

13. Alkaline peptone water is enrichment medium for the isolation of?

- a) Halotolerant Staphylococcus species
- b) *Salmonella typhi*
- c) *Vibrio cholerae* O1
- d) Salmonella non typhi

14. Which of the following organism if ingested may cause diarrhea?

- a) *Shigella*
- b) *Clostridium perfringens*
- c) *Bacillus cereus*
- d) *Staphylococcus aureus*

15. *Listeria monocytogenes* in motility medium appears as?
- Convex growth in the bottom of the medium
  - Turbid growth in entire medium
  - A straight line along the 'line' of inoculation
  - Umbrella-type growth in semi-solid media
16.  $\alpha$  - haemolysis is described as?
- Complete haemolysis with clear area around the colony
  - Incomplete haemolysis with greenish colour around the colony
  - Complete haemolysis with large clear zones
  - Non-haemolytic activity
17. Food poisoning by molds is most likely caused by ingestion of?
- Candida albicans*
  - Edible mushrooms
  - Mycotoxins
  - Fungal spore
18. The Methylene reductase test of milk is carried to detect the presence of ?
- Mycobacterium bovis*
  - Microbial contamination
  - Fecal *Escherichia coli*
  - Pathogenic bacteria
19. Precipitate formed around colonies on egg yolk media by *Clostridia* is due to production of?
- Catalase
  - Spores
  - Pigments
  - Lecithinase
20. Test for botulism toxin is carried in the laboratory by using?
- Mice
  - Blood agar
  - Volunteers
  - Spore staining techniques
21. Which of the following media differentiates *Proteus* and *Salmonella*?
- MacConkey agar
  - SS agar
  - Urea agar
  - Citrate agar

22. Which one of the following bacteria causes typhoid?
- a) *Clostridium difficile*
  - b) *Brucella arbotus*
  - c) *Entamoeba histolytica*
  - d) *Salmonella* species
23. The following is true about Fecal *Escherichia coli* except?
- a) It's a coliform
  - b) Is an indicator for water contamination
  - c) It is not found in children
  - d) Some strain are pathogenic
24. The bacteria which causes bubonic plague is transmitted by?
- a) Through flea bites
  - b) Through mosquito bites
  - c) Oral fecal contamination
  - d) Through milk contamination
25. Acute, profuse, and voluminous watery diarrhoea is caused by?
- a) *Shigella*
  - b) ETEC
  - c) EPEC
  - d) *Vibrio cholerae*
26. Specimen suspected to contain the following organism are handled in the Biosafety cabinet?
- a) *Staphylococcus aureus*
  - b) *Bacillus anthracis*
  - c) *Shigella dysenteriae*
  - d) *Salmonella typhi*
27. Effervescences is observed when the following reagent is added to catalase positive bacteria
- a) Oxidase
  - b) Acetone
  - c) Iodine
  - d) H<sub>2</sub>O<sub>2</sub>
28. Which of the following samples is required for the widal test
- a) Nostril swabs
  - b) Serum
  - c) stool
  - d) Urine

29. Which of the following milk borne pathogen cause fever
- Campylobacter
  - Staphylococcus
  - Brucella
  - Salmonella
30. Which of the following bacteria is a beneficial normal flora
- Lactobacillus
  - Bacillus
  - Clostridia
  - Candida
31. Botulism poisoning is caused by a species of the following bacteria
- Mycobacterium
  - Bacillus
  - Clostridium
  - Brucella
32. Which of the following chemical is added in medium to selectively isolate Staphylococcus from food?
- Calcium chloride
  - Bile salts
  - Agar powder
  - Sodium chloride
33. Aflatoxins in heat cooked foods is?
- Destroyed
  - Able to cause disease
  - Still active
  - Inactivated
34. MPN as used in microbiological analysis of water means?
- Most probable number
  - Multiple probable numbers
  - Multidrug profile index
  - Media plate network
36. Candidiasis can be caused by reduction of the following vaginal bacteria?
- Spirochaetes*
  - Lactobacillus*
  - Candida species*
  - Streptococcus group B*

37. If Coliform are detected in contaminated water sample the test is referred to as?

- a) Confirmation test
- b) Conclusive test
- c) Presumptive test
- d) Pilot study

10. Which one of the following pathogen causes diarrhea on consumption of refrigerated rice meals?

- a) *Bacillus cereus*
- b) *Shigella flexneri*
- c) ETEC
- d) *Bacillus subtilis*

38. The following volumes of contaminated water samples is may be inoculated in 10 ml single strength MacConkey broth purple except?

- a) 2ml
- b) 10ml
- c) 0.1ml
- d) 1ml

39. Why are food handlers screened for typhoid?

- a) *Salmonella typhi* is common in salad foods
- b) *S. typhi* cause gastroenteritis in sick persons
- c) *S. typhi* is invasive
- d) *S. typhi* can be carried by healthy persons

40. MacConkey purple broth tube cultures are recorded positive if the following is observed

- a) Yellow colour, Gas in Durham tubes
- b) Purple colour ,no gas in Durham tubes
- c) Yellow colour ,No gas in Durham tubes
- d) Purple colour, gas in Durham tubes

## Section B

41. a) Discuss water borne diseases caused by *Escherichia coli* (10 Marks)
- b) Describe the preparation of MacConkey broth purple (10 marks)
42. a) Differentiate between Food borne intoxication and infection (10 Marks)
- b) Explain the confirmation tests for detection of fecal *Escherichia coli* in water (10 Marks)
43. Briefly discuss the microbiological analysis for *Clostridium* food poisoning under, description of organism, classification, culture and biochemical identification (20 Marks)