



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2019/2020 ACADEMIC YEAR**

EXAMINATIONS

**FOR THE DIPLOMA
IN
MEDICAL LABORATORY SCIENCE**

COURSE CODE: BMD 323

**COURSE TITLE: PUBLIC HEALTH MICROBIOLOGY
MAIN EXAM**

DATE: 7TH DECEMBER 2020

TIME: 2.00 - 4.00PM

INSTRUCTIONS TO CANDIDATES

This paper is divided into three sections, **A B** and **C**, carrying respectively: Multiple Choice Questions (**MCQs**), Short Answer Questions (**SAQs**) and Long Answer Questions (**LAQs**)

MMUST observes ZERO tolerance to examination cheating

MULTIPLE CHOICE QUESTIONS (20 marks)

1. The following bacteria cause food borne infections **except**

- A) *Vibrio cholerae*
- B) *Bacillus Cereus*
- C) *Salmonella typhi*
- D) *Proteus vulgaris*

2. Rice water stool with mucus flakes is usually associated with

- A) Rotavirus enteritis
- B) *Vibrio cholera*
- C) *Escherichia coli*
- D) *Staphylococcus aureus*

3. The following are bacteriological indicator organisms **except**

- A) *Escherichia coli*
- B) *Clostridium botulinum*
- C) *Clostridium perfringens*
- D) *Streptococcus faecalis*

4. Why is a Durham tube inserted in Lauryl sulphate lactose broth during water analysis

- A) To allow growth and multiplication of the bacteria
- B) To determine the amount of lactose fermented by the bacteria
- C) To preserve the bacteria found in water
- D) To detect production of gas by the bacteria

5. The following helminthes are associated with water bacteriology except

- A) *Ascaris lumbricoides*
- B) *Trichuris trichiura*
- C) *Diphyllobothrium latum*
- D) *Wuchereria bancrofti*

6. The following viruses are common pathogens transmitted through food except

- A) Novovirus
- B) Poliovirus
- C) Hepatitis A virus
- D) Influenza virus

7. The following bacteria cause food poisoning by intoxication **EXCEPT**

- A) *Clostridium botulinum*
- B) *Staphylococcus aureus*
- C) *Aspergillus flavus*
- D) *Escherichia coli*

8. Which of the following organisms when isolated from sewage show recent contamination

- A) Coliforms
- B) Enterococci
- C) Klebsiella
- D) Citrobacter

9. Which of the following parasite is a major concern with regards to safe drinking water

- A) *Giardia lamblia*
- B) *Toxoplasma gondii*
- C) *Naegleria fowleri*
- D) *Entamoeba histolytica*

10. *Listeria monocytogenes* is a

- A) Gram positive bacilli
- B) Gram positive cocci
- C) Gram negative cocci
- D) Gram negative bacilli

11. A 12 year old child has been diagnosed with amoebic dysentery after drinking contaminated water from one of the rural areas of Kenya. The child was infected with

- A) Hepatitis A virus
- B) Hepatitis E virus
- C) *Entamoeba histolytica*
- D) Astrovirus

12. Which organism causes food poisoning from the enterotoxin produced in rice or other cereals that have been cooked and stored in warm temperature?

- A) *Bacillus cereus*
- B) *Shigella dysenteriae*
- C) Enterotoxigenic *Escherichia coli*
- D) *Clostridium perfringens*

13. What is the most ideal media for isolating *Staphylococcus aureus* from faecal specimen when investigating staphylococcal food poisoning

- A) Mannitol egg yolk phenol red polymyxin agar
- B) Mannitol salt agar
- C) Robertsons cooked meat media
- D) Blood agar

14. Bacteria that form a centrally placed endospore is

- A) *Clostridium perfringens*
- B) *Streptococcus faecalis*
- C) *Staphylococcus aureus*
- D) *Salmonella typhi*

15. In newborn infants, *Listeria monocytogenes* causes

- A) Conjunctivitis
- B) Meningitis
- C) Diarrhoea
- D) Pneumonia

16. Scombroid poisoning is associated with toxin produced by:

- A) Fugu
- B) Tuna
- C) Eels *Cylindrospermopsis*.
- D) Sharks

17. You would like to use a bacterial culture as bio-degraders to perform a bioremediation process. To which of the following phases would you grow your culture to obtain active organisms

- A) Exponential phase.
- B) Stationary phase.

- C) Lag phase.
- D) Death phase.

18. Q- Fever is caused by the following bacteria

- A). *Yersinia enterocolitica*
- B). *Campylobacter jejuni*
- C). *Coxiella burnetti*
- D). *Vibrio parahemolyticus*

19. A patient was suffering from: diarrhoea, abdominal pain, nausea and intestinal blockage. He has eaten a sandwich of beef-burger from one of the poor hygiene restaurants. The patient is more likely infected with (1 Mark):

- A) *Trichuris trichiura*.
- B) *Diphyllobothrium latum*
- C) *Taenia saginata*.
- D) *Ascaris lumbricoides*

20. Botulism is caused by the presence of toxin produced by

- A) *Clostridium butyricum*
- B) *Clostridium sporogenes*
- C) *Clostridium botulinum*
- D) None of the above

SECTION TWO: SHORT ANSWER QUESTIONS (40 marks)

1. State Any **Four (4)** clinical symptoms of Shigellosis (**4marks**)
2. List Any **Four (4)** Escherichia coli strains involved in food borne infections (**4marks**)
3. Shigellosis is caused by members of the genus Shigella. State the **Four(4)** species (**4 marks**)
4. State Any **Four (4)** control measures of Vibrio cholera infections (**4 marks**)
5. State **Four (4)** characteristics of viral food borne infections (**4marks**).
6. Give Any **Two (2)** microscopic and Any Two (2) cultural characteristics of Clostridium perfringens respectively (**4marks**)
7. List Any **Four (4)** common protozoa that cause food borne diseases(**4marks**)
8. List **Four (4)** symptoms of Hepatitis A virus infection(**4marks**)
State Any **Four (4)** serological enterotoxins produced by staphylococcus aureus while growing in food. (**4marks**)
9. List Any **Four(4)** factors influencing microbial activity in food (**4 marks**)
10. Describe infant botulism (**4 marks**)

SECTION C: LONG ANSWER QUESTIONS (60 marks)

1. State the procedure for
 - a) Presumptive coliform count (**10 marks**)
 - b) Membrane filter method (**10 marks**)
2. Discuss *Campylobacteriosis* in man under the following
 - a) Mode of infection (**10marks**)
 - b) Clinical signs (**5 marks**)
 - c) Preventive measures (**5marks**)
3. Describe the following tests used in the bacteriological examination of milk
 - a) Methylene blue test (**10marks**)
 - b) Phosphatase test (**10marks**)