



*(University of Choice)*

**MASINDEMULIROUNIVERSITY OF SCIENCE AND TECHNOLOGY**

**(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS**

**2022/2023 ACADEMIC YEAR**

**FIRST-YEAR, SECOND-SEMESTER EXAMINATIONS**

**FOR THE DEGREE OF**

**BACHELOR OF OPTOMETRY AND VISION SCIENCES/OCCUPATIONAL HEALTH**

**MAIN EXAMINATION**

**COURSE CODE: BML 132**

**COURSE TITLE: INTRODUCTION TO MEDICAL MICROBIOLOGY**

**DATE: 14/4/2023**

**TIME: 3.00-5.00PM**

### **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**).

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 5 Printed Pages. Please Turn Over.

## SECTION A (20MKS)

- Which of the following are obligate intracellular pathogens
  - Bacteria
  - Fungi
  - Parasites
  - Viruses
- In microbiology history Luis pasteur \_\_\_\_\_
  - Showed that prolonged heating prevented the appearance of microorganisms.
  - Discovered microorganisms, which he called “animalcules”
  - Made the first microscopic examination of cells in tissue.
  - Discovered the law of refraction, resulting in improvement in lens grinding techniques.
- The following are chemical methods of acquiring sterilization EXCEPT.
  - Formaldehydes
  - Alcohols
  - Ionization
  - Halogen
- The following statement is true about antiseptis.
  - The elimination of pathogens including spores by use of physical procedures.
  - The elimination of pathogens including spores by use of chemical procedures.
  - The elimination of pathogens by use of physical or chemical procedures except spores from tissues
  - The elimination of pathogens by use of physical or chemical procedures including spores from inanimate objects.
- Which one of the following causes oral thrush?
  - A. fumigatus*
  - C. albicans*
  - Basidiobolus ranarum*
  - Rhizopus arrhizus*

6. Which of the following classes of antibiotics inhibits bacterial cell wall synthesis?
- A. Cephalosporins
  - B. Erythromycin
  - C. Rifampicin
  - D. Vancomycin
7. . Which one of the following bacteria is a club shaped gram positive?
- A. Mycobacterium tuberculosis
  - B. Clostridium perfringens
  - C. Cambylobacter jejunii
  - D. Yersinia pestis
8. Which of the following is a Gram negative bacteria
- A. *Neisseria gonorrhoeae*
  - B. *Staphylococcus aureus*
  - C. *Streptococcus pneumoniae*
  - D. *Bacillus anthracis*
9. In Gram staining procedure Crystal violet is used as \_\_\_\_\_
- A. Primary stain
  - B. Counterstain
  - C. Decolourizer
  - D. Mordant
10. The following are cutaneous mycoses which one is not?
- A. Tinea (worm) capitis
  - B. Tinea cruris
  - C. Histoplasmosis
  - D. Candidiasis
11. Arboviruses are \_\_\_\_\_
- A. Enteric viruses
  - B. Vector borne viruses
  - C. Waterborne viruses
  - D. Sexually transmitted viruses

12. Bleach is an example of which group of chemicals used for disinfection?
- A. heavy metals
  - B. halogens
  - C. quats
  - D. bisbiguanides
13. Which of the following is true with respect to fungi?
- A. Cell mediated immunity is not required for control of infections.
  - B. Possess a complex cell wall made up of glycoprotein, chitin and other materials.
  - C. Are strict anaerobes.
  - D. They are eukaryotic.
14. The function of fimbriae of the bacterial cell is?
- A. Protects the bacteria from phagocytosis
  - B. Allows attachment of bacteria to the cell
  - C. Prevents osmotic lysis of the cell.
  - D. Is the permeability barrier.
15. What is the role of plasmids in the bacterial cell?
- A. Adherence of bacteria to mammalian cells
  - B. Inhibition of complement activation
  - C. Carries extra chromosomal genes
  - D. Transfer of DNA between bacteria
16. During the exponential bacteria growth phase
- A. There is no bacterial growth as the bacteria are still adapting to their environment.
  - B. The bacteria are actively dividing and the number of cells double
  - C. The number of bacteria is static
  - D. There is death of bacterial cell and the numbers decrease.
17. Nutrient media can be made selective using the following methods **EXCEPT?**
- A. Addition of antibiotics
  - B. Addition of salts
  - C. Altering the pH
  - D. Removing agar

18. Optimum growth temperature for thermophiles is?

- A. 37°C
- B. 40°C
- C. 35°C
- D. 28°C

19. Isolation of pure culture refers to \_\_\_\_\_

- A. purification of culture
- B. introduction of inoculums
- C. separation of a single colony
- D. to grow microorganisms on a surface

20. Which of the following bacteria causes syphilis in humans?

- a) *Neisseria gonorrhoea*
- b) *Treponema pallidum*
- c) *Leptospira biflexa*
- d) *Leptospira interrogans*

**SECTION B: ANSWER ALL QUESTIONS (30 Marks)**

- 21. Describe the morphology of a bacterial cell (5 marks)
- 22. Explain the physical methods of sterilization (5 marks)
- 23. Outline the procedure of ZN staining technique (5 marks)
- 24. Describe the mode of action of antifungals. (5 marks)
- 25. State the safety precaution measures to take into account when handling laboratory chemicals. (5 marks)
- 26. Name the common nosocomial infections (5 marks)

**SECTION C: ANSWER ANY 2 QUESTIONS (40MKS)**

- 27. Explain various steps involved in the pathogenesis of microbes (10 Marks)
- 28. a) Describe the superficial mycoses (4 marks)  
b) Discuss the process of viral replication (6 marks)

