

60



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

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR**

FIRST YEAR SECOND TRIMESTER EXAMINATIONS

**FOR THE DEGREE
OF
BACHELOR OF SCIENCE IN NURSING**

COURSE CODE: NCN 124

COURSE TITLE: BACTERIOLOGY

DATE: 20TH APRIL, 2022 WEDNESDAY TIME: 3PM-6PM

INSTRUCTIONS TO CANDIDATES

This paper consists of three sections:

- i. Section A – Multiple Choice Questions
- ii. Section B – Short Answer Question
- iii. Section C – Long Answer Question.

Answer all questions

TIME: 3 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over. ►

Section A: MCQ (20 Marks)

Choose the most appropriate choice, only one choice is correct

1. Which of this bacteria is resistant to penicillin as it lacks a cell wall?
 - a. Spirochetes
 - b. Cyanobacteria
 - c. Mycoplasmas
 - d. Bdellovibrios
2. What is a cluster of polar flagella called?
 - a. Petritrichous
 - b. Monotrichous
 - c. Amphitrichous
 - d. Lophotrichous
3. Which of these is a cocci occurring in single or pairs?
 - a. Diplococci
 - b. Streptococci
 - c. Tetrads
 - d. None of the above
4. Flagella in bacteria enable them to
 - a. reproduce
 - b. locomote
 - c. Thrive in nutrient agar
 - d. Adhere to tissue surfaces
5. This about cell wall of gram-positive bacteria is true
 - a. cell wall comprises of many layers
 - b. the cell wall is thicker than the associated gram-negative bacteria
 - c. Cell wall comprises of teichoic acids
 - d. All of the above
6. What is Chemotaxis?
 - a. Swimming towards a bacteria
 - b. Swimming away of a bacteria
 - c. In the presence of a chemical compound, swimming towards or away of a bacteria
 - d. None of these
7. Which of these is exposed on the outer surface of a gram-negative bacterium?
 - a. Braun lipoprotein
 - b. O-antigen of lipopolysaccharide (LPS)
 - c. Polysaccharide portion of lipoteichoic acid (LTA)
 - d. Electron transport system components
8. The covalent bond which links the cell walls of gram-positive bacteria containing two modified sugars – N – acetylmuramic acid (NAM) and N-acetyl glucosamine (NAG) is
 - a. glycosidic bond
 - b. 1,4-glycosidic bond
 - c. 1,6-glycosidic bond
 - d. Peptide bond
9. Which one of these has a Chinese letter arrangement?
 - a. Clostridium tetani
 - b. Mycobacterium tuberculosis
 - c. Bacillus anthracis

- d. *Corynebacterium diphtheriae*
10. This is analogous to mesosomes of bacteria
- Golgi apparatus of eukaryotes
 - Lysosomes of eukaryotes
 - Mitochondria of eukaryotes
 - None of the above
11. A slippery outer covering in some bacteria that protects them from phagocytosis by host cells is
- capsule
 - cell wall
 - flagellum
 - peptidoglycan
12. A bacterial cell wall does all of the following except
- gives shape and rigidity to the cell
 - is the site of action for some antibiotics
 - is associated with some symptoms of disease
 - protects the cell from phagocytosis
13. The genetic information of bacteria is stored in _____, in one circular chromosome located in the cytoplasm.
- DNA
 - protein
 - phospholipids
 - RNA
14. All of the following structures of bacteria contain (or are made of) protein except
- plasmids
 - ribosomes
 - pili
 - cell membrane
15. Among the following which is positive for coagulase test?
- Staphylococcus aureus*
 - Staphylococcus epidermidis*
 - Staphylococcus saprophyticus*
 - E. coli*
16. Which of the following is the causative agent of dental caries?
- S. pneumoniae*
 - S. pyogenes*
 - S. mutans*
 - S. faecalis*
17. *Pseudomonas* bacteria uses which of the following as an electron acceptor for anaerobic respiration?
- Oxygen
 - Nitrate
 - Phosphate
 - Sulphate
18. Which of the following is less likely to be found as the normal flora of the intestine?
- Escherichia spp*
 - Salmonella spp*
 - Staphylococcus spp*

d. *Proteus spp*

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

a. *Treponema dysenteriae*

b. *Treponema pallidum*

c. *Leptospira biflexa*

d. *Leptospira interrogans*

20. The endoflagella is present in which class of bacteria?

a. *Spirilla*

b. *Spirochetes*

c. *Bacillus*

d. *Coccus*

SECTION B: Short Answer Questions (40 marks)

1. Outline the classification system for *Streptococci species* (8marks).
2. Explain the morphological and arrangements used to classify bacterial cells (8marks).
3. Describe the virulence factors associate with *Staphylococcus aureus* (8marks).
4. Describe the taxonomic classification of gram positive bacilli bacteria of medical importance (8marks).
5. Describe the virulence factors expressed by *Borrelia species* (8marks).

SECTION C: Long Answer Questions (40 marks)

1. Discuss the anatomical structure of atypical bacteria (20marks)
2. Describe the glycolytic pathways for energy generation in bacteria (20 marks).