



*"Investing in Africa's Future"*

**COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES  
DEPARTMENT OF HEALTH SCIENCES  
BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS**

**SLS 204 BACTERIOLOGY THEORY  
END OF SECOND SEMESTER SUPPLEMENTARY EXAMINATIONS**

**APRIL/MAY 2019**

**LECTURER: Dr E. MUGOMERI**

**DURATION: 3 HOURS**

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***INSTRUCTIONS***

**The paper comprises of three sections (A, B and C).**

**Section A (20 marks)**

Answer all questions in this section.

Circle the correct answer

**Section B (20 marks)**

Answer all questions in this section.

**Section C (60 marks)**

Choose **three** questions. Credit will be given for logical, systematic and neat presentations.

**SECTION A: TRUE (T) OR FALSE (F) QUESTIONS [20 MARKS]**

1. Which of the following microorganisms stain well?  
T F A. Escherichia coli  
T F B. Legionella pneumophila  
T F C. Treponema  
T F D. Chlamydia
2. Which of the following microorganisms are not matched correctly with the appropriate isolation media?  
T F A. Vibrio cholerae – TCBS media  
T F B. Neisseria gonorrhoeae - Pink colonies media  
T F C. Haemophilus influenzae - Chocolate agar  
T F D. Mycobacterium tuberculosis - Lowenstein-Jensen agar
3. Which of the following structures contains genes for enzymes and antibiotic resistance?  
T F A. Plasmid  
T F B. Pilus  
T F C. Capsule  
T F D. Plasma Membrane
4. Which of the following is the most important structure related to microbial attachment to cells?  
T F A. Flagellum  
T F B. Plasmid  
T F C. Peptidoglycan  
T F D. Glycocalyx
5. Which of the following is not a gram-negative bug?  
T F A. Clostridium perfringens  
T F B. Vibrio cholerae  
T F C. Escherichia coli  
T F D. Bordetella pertussis
6. The cell wall of gram-positive bacteria may contribute to the development of septic shock. Identify the component which is most associated with the induction of septic shock.  
T F A. Endotoxin  
T F B. Peptidoglycan  
T F C. Phospholipid  
T F D. Teichoic acid
7. The following areas of the human body are normally sterile

- T F A. small intestines
- T F B. mouth
- T F C. skin
- T F D. vagina

8. The gram-negative organism(s) is/are

- T F A. Actinomyces
- T F B. Bacillus
- T F C. Clostridium
- T F D. None of these

9. Which of the following bacteria lack a cell wall and are therefore resistant to penicillin?

- T F A. Cyanobacteria
- T F B. Mycoplasmas
- T F C. Vibrio cholerae
- T F D. Spirochetes

10. The identification of bacteria by serologic tests is based on the presence of specific antigens. Which of the following bacterial components is least likely to contain useful antigens?

- T F A. Capsule
- T F B. Cell wall
- T F C. Flagella
- T F D. Ribosomes

11. Each of the following organisms is an important cause of urinary tract infections except:

- T F A. Klebsiella pneumoniae
- T F B. Escherichia coli
- T F C. Bacteriodes fragilis
- T F D. Proteus mirabilis

12. Each of the following agents is a recognized cause of diarrhea except

- T F A. Clostridium perfringens
- T F B. Vibrio cholerae
- T F C. Enterococcus faecalis
- T F D. Escherichia coli

13. Which of the following bacteria has the lowest 50% infective dose (ID<sub>50</sub>)?

- T F A. Campylobacter jejuni
- T F B. Salmonella typhi
- T F C. Vibrio cholerae
- T F D. Shigella sonnei

14. Which of the following disease is best diagnosed by serologic means?

- T F A. Pulmonary tuberculosis
- T F B. Gonorrhea

- T F C. Actinomycosis  
T F D. Syphilis

15. A patient develops explosive, watery diarrhea 24 hours after eating seafood. What bacterium is most likely involved?

- T F A. *Campylobacter fetus*  
T F B. *Salmonella typhimurium*  
T F C. *Shigella flexneri*  
T F D. *Vibrio cholerae*

16. Which of the following bacteria is not a most common bacterial pathogen causing diarrhea?

- T F A. *Shigella* spp  
T F B. *Salmonella* spp  
T F C. *Enterococcus faecalis*  
T F D. *Campylobacter* spp

17. Which of the following bacteria is rarely associated with urinary tract infections?

- T F A. *coli*  
T F B. *Enterobacter* spp  
T F C. *Proteus* spp  
T F D. *Shigella* spp

18. Which of the following Gram negative rod is not a blood borne bacterial pathogen?

- T F A. *Shigella* spp  
T F B. *Escherichia coli*  
T F C. *Klebsiella pneumoniae*  
T F D. *Pseudomonas aeruginosa*

19. Which of the following bacteria causing sexually transmitted disease cannot be grown on artificial media?

- T F A. *Neisseria gonorrhoeae*  
T F B. *Chlamydia trachomatis*  
T F C. *Treponema pallidum*  
T F D. *Treponema pallidum* and *Chlamydia trachomatis*

20. The staphylococcal intoxication refers to presence of

- T F A. an enterotoxin  
T F B. neurotoxin  
T F C. mycotoxin  
T F D. All of these

## **SECTION B: SHORT ANSWERS [20 MARKS]**

### **Answer all questions in this section**

B1. Write principles of the following biochemical tests and give examples

- (i). Catalase test (2)
- (ii). Indole test (3)
- (iii). Citrate test (2)
- (iv). Bound and free coagulase test (3)

B2. Explain which media you would use to isolate the following bacteria and why

- (i). *Vibrio cholera* (2)
- (ii). *Streptococcus pyogenes* (2)
- (iii). *Neisseria gonorrhoeae* (2)
- (iv). *Staphylococcus pyogenes* (2)
- (v). *Haemophilus influenza* (2)

## **SECTION C: SHORT ANSWERS [60 MARKS]**

### **Choose three questions in this section**

- C1. Write short notes on bacterial endotoxins and exotoxins (20)
- C2. Discuss the different media types with examples (20).
- C3. Write short notes on bacterial virulence factors (20).
- C4. Describe the bacterial aetiology of the urinary tract infection (UTI) (20).
- C5. Describe the bacterial aetiology of meningitis (20).