



(University of Choice)
MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS MAIN EXAM
2020/2021 ACADEMIC YEAR

FIRST YEAR SECOND TRIMESTER EXAMINATIONS

FOR THE DEGREE
OF
BACHELOR OF OPTOMETRY AND VISION SCIENCES/ CLINICAL
MEDICINE/PHYSIOTHERAPY /HEALTH PROFESSIONS EDUCATION
(DIRECT ENTRY/ UPGRADING)
MAIN EXAM

COURSE CODE: HCM 235/BML 132/HPE 101

COURSE TITLE: MEDICAL MICROBIOLOGY AND PARASITOLOGY

DATE: THURSDAY 5TH AUGUST 2021 TIME: 8.00-11.00 PM

INSTRUCTIONS TO CANDIDATES

This paper consists of

- i. Section A: Multiple Choice Questions.
- ii. Section B: Short answer questions
- iii. Section C: Long answer questions

Answer all questions

TIME: 3 Hours

MMUST observes ZERO tolerance to examination cheating

ANSWER ALL QUESTIONS (60 MARKS)

1. Electron Microscope was discovered by?
 - A. Prof. Fritz
 - B. Janssen and Hans
 - C. Knoll and Ruska
 - D. AntonyvonLeewenhok
2. The main feature of prokaryotic organism is
 - A. Absence of locomotion
 - B. Absence of nuclear envelope
 - C. The stalked particles on the cristae
 - D. Absence of protein synthesis
3. Which of the following bacterial strains is spore former?
 - A. *Corynebacterium diphtheria*
 - B. *Listeria monocytogenes*
 - C. *Bacillus anthracis*
 - D. *Streptococcus pneumonia*
4. Pili are known as universal cell organelle which helps in?
 - A. Protein synthesis
 - B. Motility of the bacteria
 - C. Attachment of bacteria to the host
 - D. Controlling cell activities
5. Staining material of gram positive bacterium is?
 - A. Fast green
 - B. Haematoxylin
 - C. Crystal violet
 - D. Safranin
6. The principle involved in the streak plate method is?
 - A. Separation
 - B. Streaking
 - C. Isolation
 - D. Dilution
7. The etiologic agent of botulism is a?
 - A. Neurotoxin
 - B. Endotoxin
 - C. Enterotoxin
 - D. All of the above
8. Bacillus is an example of?
 - A. Gram positive bacteria
 - B. Gram negative bacteria
 - C. Virus

- D. Viroid
9. Spirochete is?
- A. *Clostridia*
 - B. *Streptococci*
 - C. *Treponemapallidum*
 - D. *Streptococci*
10. Corona virus is a?
- A. Naked RNA virus
 - B. Naked DNA virus
 - C. Enveloped RNA virus
 - D. Enveloped DNA virus
11. Which of the following is a killed attenuated virus vaccine?
- A. Measles Vaccine
 - B. Mumps vaccine
 - C. Rubella vaccine
 - D. Salk vaccine
12. Which one among the following viruses has Helical symmetry and envelope?
- A. Papilloma virus
 - B. Influenza virus
 - C. Pox virus
 - D. Rubella virus
13. What is the function of capsid in viruses?
- A. It contains all the necessary information for viral replication in susceptible cells
 - B. Interact with host receptors for entry to cell
 - C. Maturation and release of enveloped virions
 - D. Attachment proteins or spikes in enveloped viruses
14. Which of the following is Human prion disease
- A. Creutzfeld-Jacob Disease
 - B. Yellow fever
 - C. Rubella
 - D. Variola
15. The fungal disease that affect the internal organs and spread through the body are called?
- A. Mycoses
 - B. Systemic mycoses
 - C. Mycotoxicosis
 - D. Superficial mycoses
16. Candidiasis is caused by?
- A. *Candida albicans*
 - B. *Aspergillus spp.*
 - C. *E. floccosum*
 - D. *M. audouinii*
17. Clear-zones formation around antibiotic disc is due to?
- A. Growth of the bacterium surrounding of the disc
 - B. Lysis of the bacterial cells surrounding the disc

- C. The destruction of paper disc (antibiotic)
 D. None of these
18. The antibacterial action of penicillin is due to its effect on?
 A. Cell membrane permeability
 B. Cell wall synthesis
 C. DNA synthesis
 D. Protein synthesis
19. Which of the following is Subcutaneous mycoses
 A. Athlete's foot
 B. *Tinea capitis*
 C. *Tinea cruris*
 D. Sporotrichosis
20. What is the mechanism of action of Azoles during fungal infection
 A. Interfere with ergosterol synthesis
 B. Forms a barrier to fungal growth
 C. Inhibits RNA synthesis
 D. Binding to Ergosterol in cell membrane

SECTION B: SHORT ANSWER QUESTIONS: ANSWER ALL QUESTIONS (40 MARKS)

1. Explain how microbiology have been useful in various disciplines (8 marks)
2. State how antimicrobials causes inhibition of :
 - a) Cell wall synthesis (2 marks)
 - b) Functions of cellular membrane (2 marks)
 - c) Protein synthesis (2 marks)
 - d) Folic acid synthesis (2 marks)
3. Explain the principle of Gram staining reaction based on the structure of the bacterial cell wall (8 marks)
4. Outline the factors that are considered to pronounce a vaccine to be good (8 marks)
5. Discuss the Localized cutaneous infections caused by *staphylococcus aureus* (8 marks)

SECTION C: LONG ANSWER QUESTIONS: ANSWER ALL QUESTIONS (40 MARKS)

1. a) Discuss the Virulent factors (enzymes and toxins) produced by *Staphylococcus aureus* that enhance disease pathogenesis (12 marks)
 b) Briefly discuss the mechanism of action of antifungals against fungal infections (8 marks)
2. a) Describe the pathology of *Streptococcus pneumoniae* (12 marks)
 b) Explain the four types of functional media used in culturing bacteria (8 marks)