

102105T4COH

COMMUNITY HEALTH LEVEL 5

HE/OS/CH/CC/04/5/A

APPLY BASIC MICROBIOLOGY AND PARASITOLOGY

NOV/DEC 2023



**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION
COUNCIL (TVET CDACC)**

WRITTEN ASSESSMENT

Time: 3 HOURS

INSTRUCTIONS TO CANDIDATE

1. The paper consists of three sections: **A, B** and **C**.
2. You are provided with a separate answer booklet.
3. Marks for each question are as indicated.
4. Do not write on the question paper.

This paper consists of seven (7) printed pages.

**Candidate should check the question paper to ascertain that all pages are
printed as indicated.**

SECTION A: (20 MARKS)

Answer ALL the questions in this section.

1. Virology is the study of _____.
 - A. The study of Bacteria
 - B. The study of Parasites
 - C. The study of Viruses
 - D. The study of Fungi
2. A community member infested with *Entamoeba histolytica* can suffer from which of the following diseases.
 - A. Dermatitis
 - B. Giardiasis
 - C. Cholera
 - D. Amoebiasis
3. A sand fly bites a person who subsequently develops visceral leishmaniasis. Choose from the following, a type of transmission could this be.
 - A. Biological vector transmission
 - B. Mechanical vector transmission
 - C. Direct contact transmission
 - D. Vehicle transmission
4. Which of the following is an example of a non-infectious disease in a community?
 - A. Infection with a respiratory virus
 - B. A disease due to rate of low bone turn over
 - C. Skin infection acquired from a dog bite
 - D. Infection acquired from the stick of a contaminated needle.
5. Identify from the following, a causative agent of pathogenic diseases in humans.
 - A. Pollen Grains
 - B. DNA
 - C. Fungi
 - D. Calcium ions

6. Each of the following statements concerning malaria is correct except.
- A. The principal site of gametocyte formation is the human gastrointestinal tract
 - B. The female anopheles mosquito is the vector
 - C. Early in the infection, sporozoites enter hepatocytes
 - D. Release of merozoites from red blood cells causes periodic fever and chills.
7. Identify from the following, a structure for microbial attachment.
- A. Flagellum
 - B. Pili
 - C. Plasmid
 - D. Peptidoglycan
8. Which of the following is a type of biological vector for human disease transmission?
- A. Viruses.
 - B. Bacteria.
 - C. Mammals.
 - D. Arthropods.
9. Choose from the following, a micro-organism transmitted by Tsetse flies.
- A. *Trichomonas vaginalis*
 - B. *Trypanosoma gambiense*
 - C. *Entamoeba histolytica*
 - D. *Toxoplasma*
10. Bacteria are referred to as prokaryotic organism because _____.
- A. They lack a nucleus bound membrane
 - B. They have multiple nuclei
 - C. They have a divided nucleus
 - D. They have a peptidoglycan cell wall
11. Filariasis is a disease caused by which of the following parasite.
- A. *Leishmania donovani*
 - B. *Wuchereria bancrofti*
 - C. African Trypanosomiasis
 - D. *Ascaris lumbricoides*

12. Microorganisms that have the ability to cause disease are called _____.
- A. Infection
 - B. Virulence
 - C. Disease
 - D. Pathogens
13. Which of the following is an activity for disease prevention and control in the community?
- A. Deworming children in the community
 - B. Fault finding mission
 - C. Open defecation
 - D. Planting trees along the river banks
14. The quantitative content of parasites in the blood which is used as a measurement of possible load in the infected organism is referred to as _____.
- A. Viremia
 - B. Bacteremia
 - C. Fungaemia
 - D. Parasitemia
15. Fungi form characteristic filamentous tubes known as _____.
- A. Archaea
 - B. Halophile
 - C. Hyphae
 - D. Flagella
16. Choose from the following, is a polyhedral capsid shape of a virus.
- A. Icosahedron
 - B. Pentahedron
 - C. Polyhedron
 - D. Octahedron
17. Which of the following is a primary disease prevention method in a community?
- A. Chemotherapy
 - B. Proper Hand Washing
 - C. Treatment of the disease
 - D. Scanning of the early stages of the disease

18. Which of the following factors can lead to the re-emergence of a disease?

- A. A mutation that allows it to infect humans
- B. A change in disease reporting procedures
- C. Better education on the signs and symptoms of the diseases
- D. A period of decline in vaccination rates

19. Identify from the following, a shape of bacteria.

- A. Faecos shape
- B. Coli shape
- C. Basillus shape
- D. Enterococcus shape

20. _____ is a layer of a virus?

- A. Phospholipids
- B. Lipophospholipids
- C. Protein coat
- D. Permeable layer

SECTION B: (40 MARKS)

Answer ALL the questions in this section

21. Define the term microbiology. **(2 Marks)**
22. State THREE benefits of studying microbiology and parasitology. **(3 Marks)**
23. Outline THREE examples of viruses that can infect an individual in a community. **(3 Marks)**
24. State FOUR needs for classifying micro-organisms. **(4 Marks)**
25. Identify THREE vulnerable groups to microbial and parasitic infections in the community. **(3 Marks)**
26. Outline THREE hosts of Schistosoma Spp. **(3 Marks)**
27. Mention THREE sign and symptoms that a person suffering from Visceral Leishmania can manifest. **(3 Marks)**
28. Highlight FOUR characteristics of a virus. **(4 Marks)**
29. State THREE objectives of primary prevention of microbial diseases in a community. **(3 Marks)**
30. Highlight FOUR conditions necessary for microbial growth. **(4 Marks)**
31. State FOUR types of ecological relationships characterized by interaction among organisms within their ecological niche. **(4 Marks)**
32. Highlight FOUR measures that must be implemented to prevent the spread of common parasitic and microbial infections in a community. **(4 Marks)**

SECTION C: (40 MARKS)

Answer any TWO questions in this section

33. Parasites thrive by invading the host, causing significant effects on the host
- a) Explain FIVE types of hosts of parasites. **(10 Marks)**
 - b) Discuss FIVE limitations encountered in the prevention and control of parasitic diseases **(10 Marks)**
34. COVID-19 pandemic posed a great health crisis globally. In Kenya, the Ministry of Health is spearheading efforts with community health workers to control and prevent this pandemic.
- a) Discuss FIVE contributing factors to increased cases of COVID-19 pandemic in informal settlement. **(10 Marks)**
 - b) Viruses are obligatory intracellular parasites. They undergo a sequence of events to enable them replicate in the host cell. Describe the steps involved in viral replication process. **(10 Marks)**
35. Bacteria require optimum conditions for growth, and these increases its virulence and infectivity in the host.
- a) State FIVE Gram positive bacteria. **(5 Marks)**
 - b) Using a well labeled diagram, Describe the microbial growth curve. **(15 Marks)**

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