

**102106T4COH**

**COMMUNITY HEALTH LEVEL 6**

**HE/OS/CH/CC/05/6/A**

**Apply Basic Microbiology and Parasitology**

**July /Aug 2023**



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

**WRITTEN ASSESSMENT**

**TIME: 3 HOURS**

**INSTRUCTIONS TO CANDIDATES**

1. This paper has two sections **A** and **B**
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 3 printed pages**  
**Candidates should check the question paper to ascertain that all**  
**pages are printed as indicated and that no questions are missing**

**SECTION A: (40 MARKS)**

**Answer all the questions in this section**

1. Define the following terms; (5 Marks)
  - a) Parasitism
  - b) Microbe
  - c) Disease
  - d) Host
  - e) Gram stain technique
2. Bacteria are unicellular organisms existing in four major shapes. Highlight FOUR major bacterial shapes. (4 Marks)
3. Microorganisms are identified by observation of the symptoms of the disease caused, in addition to the morphological characteristics by observation under the microscope. State FOUR diagnostic tests. (4 Marks)
4. Proper collection of an appropriate clinical specimen is the first step in obtaining an accurate laboratory diagnosis of an infectious disease. Highlight THREE specimens that can be used in a laboratory for diagnosis. (3 Marks)
5. During the life cycle, a protozoan generally passes through several stages that differ in structure and activity. Identify THREE different stages of protozoans affecting human health. (3 Marks)
6. Public health focuses on the prevention of disease and health promotion rather than the diagnosis and treatment of diseases. Outline THREE levels of disease prevention. (3 Marks)
7. Differentiate between a definitive host and an intermediate host. (2 Marks)
8. Microbes have optimal growth conditions under which they thrive, but once outside of these conditions, the stress can result in either reduced or stalled growth, or death. Identify FOUR factors that affect the growth of microbial organisms. (4 Marks)
9. Highlight FOUR mechanisms parasites use to impose their effect on the host. (4 Marks)
10. Distinguish between vertical direct contact transmission and horizontal direct contact transmission. (4 Marks)
11. Plasmodium belongs to the phylum Apicomplexa, a taxonomic group of single-celled parasites with characteristic secretory organelles at one end of the cell. Identify FOUR plasmodium species that cause malaria. (4 Marks)

**SECTION B (60 MARKS)**

**Answer any three questions in this section**

12. Chain of disease transmission refers to a logical sequence of factors that are essential to the development of the infectious agent and propagation of disease.
- a) Explain SIX factors involved in the chain of disease transmission. (12 Marks)
  - b) Infections progress through a common pattern. The severity and duration of the steps in the pattern may vary among pathogens and hosts to some degree, but the overall pattern are similar. Describe FOUR main Stages of disease progression. (8 Marks)
13. Communicable diseases still account for the highest proportion of disease burden in the country, with the leading causes related to HIV/AIDS, malaria, and TB. With reference to the above statement describe the control and prevention measures of communicable diseases you will employ in your county of residence.
- a) Identify SEVEN measures of attacking the source (7 Marks)
  - b) State SEVEN strategies for interrupting the transmission cycle. (7 Marks)
  - c) Explain THREE measures that can be used to protect the susceptible host. (6 Marks)
14. In a closed system or batch culture where no food is added and no wastes removed, bacteria will grow in a predictable pattern, resulting in a growth curve composed of four distinct phases of growth.
- a) Using a microbial growth curve; describe FOUR phases of growth. (16 Marks)
  - b) Using a diagram; illustrate the microbial growth curve. (4 Marks)
15. The prevalence of Helminthic diseases among preschool children remains a public health challenge and this can have an effect on their physical growth.
- a) Explain TWO risk factors of helminthic diseases. (4 Marks)
  - b) Identify FOUR helminthic diseases apart from Ascariasis. (4 Marks)
  - c) Explain the life cycle of Ascariasis. (12 Marks)

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