102105T4COH

COMMUNITY HEALTH LEVEL 5

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

Apply Basic Microbiology and Parasitology

July/August 2023

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

WRITTEN ASSESSEMENT

3 HOURS

INSTRUCTIONS TO CANDIDATES

1. This paper has 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 7 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: (20 MARKS)

Answer all questions in this section. Each question carries one Mark

1. Cerebral malaria is a severe form of malaria presenting with varied signs and symptoms. Which of the following is a symptom of cerebral malaria?
   A. Delirium
   B. Skin lesions
   C. Anorexia
   D. Patchy hair loss
2. _____is the infective stage of malaria parasite.
   A. Schizonts
   B. Trophozoites
   C. Oocyte
   D. Sporozoites
3. Select from the following, a parasite that can be acquired congenitally.
   A. Taenia sagnata
   B. Plasmodium falciparum
   C. Taenia solium
   D. Mumps virus
4. Which of the following is a strategy of disease prevention?
   A. Giving antimalarials
   B. Giving antibiotics
   C. Giving vaccines
   D. Injecting insulin
5. Tuberculosis is a highly infectious disease that can be transmitted from one person to another. Choose the correct mode of transmission from the answers given below.
   A. Fecal oral route
   B. Airborne transmission
   C. Body fluid contact
   D. Vector transmission
6. _____is a causative agent of malaria.

A. Plasmodium falciparum
B. Sarcoptes scabiei
C. Salmonella typhi
D. Toxoplasma gondii

7. Amoebic dysentery is a fecal oral disease that can be transmitted through unhygienic practices; choose the correct causative organism from the list provided below.
   A. Salmonella typhi
   B. Giardia lamblia
   C. Entamoeba histolytica
   D. Bacillus anthracis
8. Examination of parasites sometimes involves the use of a wet preparation. Which one of the following pairs used for diagnosis of parasite infection is correctly matched?
   A. Blood; diagnosis of Entamoeba histolytica
   B. Urine; diagnosis of Schistosoma haematobium
   C. Stool; diagnosis of Trypanasoma species
   D. Blood; diagnosis of Giardia lamblia
9. Helicobacter pylori have been implicated in the development of _____
   A. Stomach ulcers
   B. Prostate cancer
   C. Throat cancer
   D. Breast cancer
10. Pathogenicity is an attribute of living agents. Which one of the following describes pathogenicity?
    A. Microbe which must be present for the disease to occur
    B. Incision of the host by microorganisms
    C. Mechanism of infection and to the mechanism by which disease develops
    D. Measure of the ability of a microorganism to cause a disease to the host
11. African sleeping sickness is caused by which of the following protozoa?
    A. Trypanosoma gambiense
    B. Entamoeba histolytica
    C. Leishmania donovani

D. Plasmodium vivax

12. Select from the following microorganisms, a Gram-positive bacterium.
    A. Vibrio
    B. Neisseria
    C. Clostridium
    D. Enterobacteriaceae
13. A cholera outbreak has occurred in a slum in a developing country. Which of the following institutions is not involved in prevention and control of spread of the disease as a mandate of the law?
    A. Research institution.
    B. Hospital.
    C. Government.
    D. Correction institutions.
14. A mosquito bites a person who subsequently develops fever and abdominal rash. Which type of transmission from the following could this be?
    A. Mechanical vector transmission
    B. Biological vector transmission
    C. Direct contact transmission
    D. Vehicle transmission
15. Protozoa infections can be classified based on their mode of movement. From the following, select one of the classifications.
    A. Sarcodina
    B. Annelids
    C. Platyhelminths
    D. Nematodes
16. The Kenya Program of Expanded Program outlines various vaccines that must be administered to under-five children. Identify from the following, a set of vaccines under this program.
    A. Measles and typhoid vaccine
    B. Rota virus vaccine and malaria vaccine
    C. BCG and IPV vaccine

D. OPV and typhoid vaccine

17. Select from the following, a statement that describes the morphology of bacteria.
    A. Bacilli bacteria are round or oval in shape
    B. Bacilli bacteria can be either rod shaped or round shaped
    C. Cocci bacteria are small oval or round shaped
    D. An example of a spirochete bacteria is Vibrio cholerae
18. A stain is used to enhance and contrast bacteria under the microscope. Choose from the following a type of staining technique.
    A. Fixation staining
    B. Chemical staining
    C. Capsule staining
    D. Smear staining
19. Which of the following is an example of a non-communicable disease?
    A. Infection with a respiratory virus.
    B. Food poisoning due to a performed bacterial toxin in food.
    C. Skin infection following a dog bite.
    D. Migraine headache as a result of elevated blood pressure
20. From the options below, identify the disease caused by a fungus.
    A. Rabies
    B. Candidiasis
    C. Sleeping sickness
    D. Toxoplasmosis

SECTION B: (40 MARKS)

Answer all questions in this section

21. Define the following terms; (1 Mark)
    a) Incubation period.
    b) Pathogens. (1 Mark)
22. Microorganisms require certain factors for optimum growth. Outline FOUR factors necessary for microbial growth. (4 Marks)
23. Stool analysis is vital in determination of parasitic infections in the laboratory. List FOUR endo-parasites that might be present in stool. (4 Marks)
24. Sterilization is a method of eradicating microorganisms. State THREE physical methods of sterilization. (3 Marks)
25. Malaria is one of the leading killer diseases in the tropics, name FOUR signs and symptoms of malaria. (4 Marks)
26. Any organism that spends a portion or all of its life cycle intimately associated with another organism of a different species is considered as Symbiont. Highlight THREE symbiotic relationships. (3 Marks)
27. For diagnostic purposes specimens are collected and taken to the laboratory for analysis. Identify FOUR specimens used for diagnostic purposes during laboratory analysis. (4 Marks)
28. The schistosomes cause intestinal, hepato-splenic, pulmonary, urogenital, cerebral and other forms of schistosomiasis. Outline the THREE species of schistosomiasis. (3 Marks)
29. Identify FOUR sites in the human host system where parasites reside. (4 Marks)
30. HIV AIDS is an example of a viral disease. Give THREE other examples of human viral disease. (3 Marks)
31. Gonorrhea is a bacterial infection that can be transmitted from one person to another during coitus. Outline THREE signs and symptoms of this infection. (3 Marks)
32. State THREE preventive measures of cholera. (3 Marks)

SECTION C: (40 MARKS)

Answer any two questions in this section

33. A rapid needs assessment was conducted to determine the prevalent of diseases in community X during which tuberculosis was singled out to be a major concern.
    a. Describe FOUR symptoms of tuberculosis. (4 Marks)
    b. Explain FOUR risk factors that might have pre-disposed community X to the disease. (8 Marks)
    c. Explain FOUR prevention methods you can recommend for implementation amid the containment of the spread of Mycobacterium tuberculosis in community X. (8 Marks)
34. The transmission of pathogens from current to future host follows a repeating cycle. This cycle is called the transmission cycle of disease.
    a. Differentiate between direct and indirect disease transmission. (2 Marks)
    b. Discuss FOUR elements in the transmission cycle. (8 Marks)
    c. Describe the FIVE routes of microorganism transmission. (10 Marks)
35. Microbial growth is defined as an increase in cellular constituents resulting in an increase in microorganism size, population number or both.
    a. Draw a well labelled diagram to illustrate the FOUR phases of microbial growth (5 Marks)
    b. Explain the FOUR phases of microbial growth. (8 Marks)
    c. Differentiate between obligate aerobes and obligate anaerobes. (4 Marks)
    d. Identify THREE industrial benefits of microorganisms. (3 Marks)

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