

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

SECOND YEAR EXAMINATION FOR THE AWARD OF DEGREE OF SCIENCE (NURSING)

COURSE CODE: NURS 227 / NURU 122: MEDICAL PARASITOLOGY

STREAMS: BSC (NURSING UPGRADING)

TIME: 2 HOURS

DAY/DATE: TUESDAY 13 /07/ 2021

2.30 PM – 4.30 PM

INSTRUCTIONS:

- Answer ALL questions
- Do not write anything on the question paper
- This is a **closed book exam**, No reference materials are allowed in the examination room
- There will be **No** use of mobile phones or any other unauthorized materials
- Write your answers legibly and use your time wisely

SECTION I

1. A client has some subcutaneous nodules. If her infection was acquired by black fly bite, what is the most likely causative agent?
 - a. *Ancylostoma braziliense*
 - b. *Loa loa*
 - c. *Onchocerca volvulus*
 - d. *Wuchereria bancrofti*
2. A surgical patient who imports food from Mexico, and so spends several months each year in rural Mexico, returns several days to Kenya after her mastectomy with signs of acute appendicitis. When her appendix is removed it is found to contain a light-colored, 20.5-cm long roundworm and bile-stained, knobby eggs consistent with Ascaris. How did she acquire this infection?
 - a. Ingestion of water containing filariform larvae

- b. Skin penetration by filariform larvae
 - c. Skin penetration by rhabditiiform larvae
 - d. Ingestion of food contaminated with the eggs
3. A patient whose major source of protein is smoked and cooked fish develops what appears to be pernicious anemia. What parasite is noted for causing a look-alike vitamin B₁₂ anemia in certain genetically predisposed infected individuals?
- a. *Echinococcus granulosus*
 - b. *Diphyllobothrium latum*
 - c. *Hymenolepis nana*
 - d. *Dipylidium caninum*
4. What is the most likely reason for a case of Plasmodium vivax relapsing?
- a. P vivax has a significant level of chloroquine resistance.
 - b. P vivax has a persistent erythrocytic stage.
 - c. P vivax has a persistent exoerythrocytic stage (hypnozoite).
 - d. Chloroquine is not one of the drugs of choice.
5. How is Leishmania donovani transmitted?
- a. Anopheles mosquito bite
 - b. Black fly bite
 - c. Culex mosquito bite
 - d. Sandfly bite
6. How is Schistosoma haematobium transmitted?
- a. Ingestion of raw or undercooked snail
 - b. Invasion of filariform larvae from soil
 - c. Handling aquatic birds
 - d. Standing or swimming in contaminated water
7. Which of the following is the tapeworm acquired from eating undercooked pork?
- a. *Dipylidium* spp
 - b. *Echinococcus granulosus*
 - c. *Taenia saginata*
 - d. *Taenia solium*
8. What roundworm is most likely to be transmitted by ingestion of food or water contaminated with human feces?
- a. *Ascaris lumbricoides*
 - b. *Enterobius vermicularis*
 - c. *Necator americanus*
 - d. *Toxocara canis*
9. What roundworm is transmitted by filariform larvae that are found in the soil and penetrate the skin?
- a. *Dracunculus medinensis*
 - b. *Enterobius vermicularis*
 - c. *Strongyloides stercoralis*

- d. *Toxocara canis*
10. How is *Clonorchis sinensis* (Chinese liver fluke) most likely transmitted to humans?
- Fish ingestion
 - Mosquito bite
 - Swimming or water contact
 - Water ingestion
11. Which of the following protozoans is transmitted primarily by the motile trophozoite form?
- Balantidium coli*
 - Entamoeba histolytica*
 - Giardia lamblia*
 - Trichomonas vaginalis*
12. A woman complains of having paroxysmal attacks of chills, fever, and sweating; these attacks last a day or two at a time and recur every 36 to 48 h. Examination of a stained blood specimen reveals ring-like and crescent-like forms within red blood cells. The infecting organism most likely is
- Plasmodium falciparum*
 - Plasmodium ovale*
 - Plasmodium malariae*
 - Plasmodium vivax*
13. The diagnostic characteristics of *Plasmodium falciparum* are best described by which one of the following statements?
- A period of 72 h is required for the development of the mature schizont, which resembles a rosette with only 8 to 10 oval merozoites
 - An important diagnostic feature is the irregular appearance of the edges of the infected red blood cell
 - The signet-ring-shaped trophozoite is irregular in shape with ameboid extensions of the cytoplasm
 - Except in infections with very high parasitemia, only ring forms of early trophozoites and the gametocytes are seen in the peripheral blood
14. Which of the following organisms penetrates skin and has a large lateral spine on its eggs?
- Clonorchis sinensis*
 - Schistosoma mansoni*
 - Schistosoma japonicum*
 - Schistosoma haematobium*
15. Your patient is a 5-year-old boy who complains of perianal itching, especially at night. A “Scotch tape” preparation reveals some eggs in the microscope. Which one of the following is the most likely parasite
- Enterobius*
 - Trichuris*
 - Ascaris*
 - Onchocerca*

16. Regarding drugs used to treat or prevent malaria, which one of the following is most accurate?
- The combination of atovaquone and proguanil is useful for the treatment of acute malaria but not for prevention.
 - is the drug of choice in malaria caused by *P. falciparum* because resistance to the drug is rare.
 - Mefloquine is useful for the prevention of chloroquinesensitive *P. falciparum* but not for chloroquine-resistant strains.
 - Artemisinin derivatives, such as artesunate and artemether, are effective in the treatment of multiple-drug resistant *P. falciparum*.
17. Regarding *T. gondii*, which one of the following is most accurate?
- One way to prevent this infection is to advise pregnant women not to drink unpasteurized milk.
 - The form of *Toxoplasma* found in the tissue cysts in humans is the rapidly dividing tachyzoite.
 - The most important definitive host (the host in which the sexual cycle occurs) for *Toxoplasma* is the domestic cat.
 - Infection in people with reduced cell-mediated immunity, such as AIDS patients, is characterized by persistent watery (nonbloody) diarrhea.
18. Regarding *P. jiroveci*, which one of the following is most accurate?
- The treatment of choice is a combination of penicillin G and an aminoglycoside.
 - Finding oval cysts in bronchial lavage fluid supports a diagnosis of *Pneumocystis pneumonia*.
 - Large domestic animals such as cows and sheep are an important reservoir of human infection with this organism.
 - Transmission occurs by the ingestion of food contaminated with the organism, after which it enters the bloodstream and is transported to the lung
19. Your client is complaining of feeling of bloating sensation with foul smelling watery diarrhea. The most probable protozoon responsible for this is
- Entamoeba histolytica*
 - Girdia lamblia*
 - Cryptosporidium parvum*
 - Toxoplasma gondii*
20. Analysis of a patient's stool reveals small structures resembling rice grains; microscopic examination shows these to be proglottids. The most likely organism in this patient's stool is
- Ascaris lumbricoides*
 - Necator americanus*
 - Taenia saginata*
 - Trichuris trichiura*

SECTION II (30 marks)

1. Describe the lifecycle of *Ascaris lumbricoides* (5 marks)
2. Describe the pathophysiology of *Ancylostoma duodenale* infection (5 marks)
3. State six (6) signs and symptoms of *Schistosoma hematobium* infection (3 marks)
4. Describe the clinical course of *Entamoeba histolytica* infection (6 marks)
5. Describe the pathophysiology of *Wuchereria bancrofti* infection (4 marks)
6. Outline the lifecycle of *Diphyllobothrium latum* (7 marks)

SECTION III

(20 marks)

Regarding malaria:

- (a) Describe the life cycle (4 marks)
 - (b) Pathophysiology (12 marks)
 - (c) Treatment (4 marks)
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