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### University Examinations 2024/2025

SECOND YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR  
OF MEDICAL LABORATORY AND BACHELOR OF MEDICAL MICROBIOLOGY

#### HML 3217/ HMM 3218: PRINCIPLES OF MEDICAL PARASITOLOGY

DATE: JANUARY 2025

TIME: 3 HOURS

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#### INSTRUCTIONS:

Answer *All* questions

Ensure that all your answers are properly numbered

Part I multiple Choice Questions (MCQ): Write the correct answer on the space provided in the answer booklet. Each MCQ is one mark

Part II: Short Answer Questions – Answer questions following each other on the answer booklet

Part III: Long Answer Questions – Answer any two questions on the answer booklet

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#### SECTION A: MULTIPLE CHOICE QUESTIONS (20 marks)

1. Which of the following is a definitive host?

- a) A host where the parasite undergoes fertilization and reaches sexual maturity
- b) A host harboring the larval or immature stage of a parasite
- c) A host that provides nutrients for the parasite but does not support reproduction
- d) A host where the parasite does not complete its lifecycle

2. Which mode of transmission occurs when a parasite is passed from mother to child via the placenta?

- a) Horizontal direct transmission

- b) Indirect transmission
  - c) Vertical direct transmission
  - d) Ingestion of contaminated food
3. Which of the following is a key step in the Kato-Katz technique?
- a) Centrifugation of the stool sample
  - b) Preparation of a thick smear of stool
  - c) Inoculation into culture media
  - d) Use of a formalin solution for fixation
4. What is the primary effect of a parasitic infection on the host's body?
- a) Improved immune system function
  - b) Increased nutrient absorption
  - c) Damage to tissues and organs
  - d) Enhanced growth and development
5. Which stage of quality assurance ensures that the correct specimen is collected and preserved properly in parasitology?
- a) Analytical stage
  - b) Post-analytical stage
  - c) Pre-analytical stage
  - d) Reporting stage
6. What is the main component of the Entero-Test procedure?
- a) A blood sample
  - b) A stool sample
  - c) A capsule containing a gelatin string
  - d) A biopsy of intestinal tissue
7. What is the main objective of the analytical stage in parasitology laboratory testing?
- a) Collection and transport of the specimen
  - b) Performing tests and ensuring accuracy of results

- c) Reporting the test results to clinicians
  - d) Ensuring proper disposal of test materials
8. Which of the following is a commonly used preservative for faecal parasites?
- a) Formalin
  - b) Buffered saline
  - c) Ethanol
  - d) Lugol's iodine
9. What is the purpose of preparing permanent mounts in parasitology?
- a) To preserve parasites for future reference and study
  - b) To prevent contamination during examination
  - c) To improve the visibility of parasites under the microscope
  - d) To speed up the diagnostic process
10. Which technique is commonly used to examine blood for parasitic infections like malaria?
- a) Flootation technique
  - b) Culture methods
  - c) Thin and thick blood films
  - d) Sedimentation technique
11. In xenodiagnoses, which of the following is typically used to detect parasitic infections?
- a) Microscopy
  - b) Immunological tests
  - c) Inoculation of parasites into animals
  - d) Faecal concentration techniques
12. Which of the following methods is used for detecting parasitic infections in urine samples?
- a) Serological tests
  - b) Sputum examination
  - c) Filtration methods
  - d) Muscle biopsy

13. The floatation technique in faecal concentration is primarily used to:
- a) Separate heavier parasites from lighter materials
  - b) Concentrate parasites based on density differences
  - c) Remove debris from parasite samples
  - d) Dissolve faecal matter completely
14. Which technique is more effective for detecting larger and heavier parasites in stool samples?
- a) Floatation technique
  - b) Sedimentation technique
  - c) Immunological diagnosis
  - d) Xenodiagnosis
15. Which of the following is a criterion for rejecting a stool sample in the parasitology laboratory?
- a) Sample collected in a clean container
  - b) Sample mixed with urine or water
  - c) Sample delivered within two hours of collection
  - d) Sample without preservatives
16. Which stain is commonly used to visualize blood parasites, such as Plasmodium species?
- a) Field's stain
  - b) Giemsa stain
  - c) Lugol's iodine
  - d) Safranin stain
17. Which reagent is used for preparing thick and thin blood films for parasitological examination?
- a) Formalin fixative
  - b) Acridine orange
  - c) Buffered saline
  - d) PBS (Phosphate Buffered Saline)

18. What is the purpose of using a thick blood film in parasitology?
- a) To visualize the structure of the parasite
  - b) To detect low parasitemia in blood samples
  - c) To observe motility of parasites
  - d) To differentiate between parasite species
19. Which of the following methods is used for microscopic examination of intestinal parasites?
- a) Thick blood film
  - b) Thin blood film
  - c) Iodine staining
  - d) Xenodiagnosis
20. What is a critical safety measure in a parasitology laboratory to prevent infection?
- a) Wearing a protective mask
  - b) Using strong disinfectants for all surfaces
  - c) Proper disposal of contaminated materials
  - d) Washing hands only before handling samples

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

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|---|------|
| 1. Describe Enterotest (String test) for giardia detection  | 6mks |
| 2. Explain how you will conduct risk assessment in analytical lab   | 6mks |
| 3. Describe wet technique in preparation of permanent mounts  | 8mks |
| 4. What is the difference between?  | 8mks |
| <ul style="list-style-type: none"><li>a. Commensalism and parasitism</li><li>b. Obligate and temporary parasite.</li><li>c. Definitive and intermediate host</li><li>d. Biological vector and mechanical vector</li></ul> |      |
| 5. Outline the sources of exposure to parasites   | 6mks |
| 6. Mention possible parasites that are found in the following specimens   | 6mks |

- a. Stool
- b. Blood
- c. Urine
- d. Sputum
- e. CSF

### **SECTION C: LONG ANSWER QUESTIONS (40 MARKS)**

1. Discuss 7 methods used in preservation of parasitological specimens 14mks
  - a) Permanent mounts of parasites in specimens is key in the lab. Explain 6mks
2. A 35-year-old male presents to the clinic with complaints of persistent abdominal pain, nausea, and diarrhea for the past three weeks. He reports recent travel to a tropical region where he consumed unfiltered water and undercooked food. On physical examination, he has a tender abdomen with slight distension and reports weight loss of 5 kg during the past month
  - a) Describe one concentration techniques you will use to detect this eggs in stool 12mks
  - b) Describe a method you will use to count the eggs to determine the intensity of the infection 8mks
3. Discuss any 5 different samples used in detection of parasites clearly outlining processing procedures 20mks