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BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – DMLT-2023

Course Name – Clinical Microbiology

Course Code - DMLT403

(Semester IV)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) What is the function of HEPA filters in biosafety cabinets?
 - a) To cool down the laboratory air
 - b) To remove airborne contaminants and microorganisms
 - c) To generate oxygen for experiments
 - d) To sterilize work surfaces
- (ii) Which step is performed first in the formalin-ether concentration method before centrifugation?
 - a) Mixing the stool with ether
 - b) Adding saline or formalin to emulsify the stool
 - c) Centrifugation at high speed
 - d) Direct microscopic examination
- (iii) What is the major limitation of the flotation centrifugation method for stool examination?
 - a) It cannot detect helminth ova
 - b) It may not recover heavy eggs such as schistosome ova
 - c) It requires expensive equipment
 - d) It cannot be used for fresh stool samples
- (iv) How are the collected eggs visualized after using the tape method?
 - a) Directly with the naked eye
 - b) By culturing the tape in a petri dish
 - c) By placing the tape on a microscope slide and examining under a light microscope
 - d) By staining the tape with Gram stain
- (v) Identify the location of sexual life cycle of plasmodium.
 - a) The gut of the mosquito
 - b) RBC
 - c) Liver tissue
 - d) The salivary gland of the mosquito
- (vi) Select the drug used to prevent Malaria from the following.
 - a) Mebendazole
 - b) Chloroquine
 - c) Inactivated vaccine
 - d) Zinc table
- (vii) Which of the following best describes the pathogenesis of Candidiasis?

- a) Candida produces toxins that destroy host tissues
 b) Candida overgrows when the host's immune system is weakened
 c) Candida is a normal skin commensal that never causes infections
 d) Candida infection is only acquired through direct contact with an infected person
- (viii) Choose the primary symptom of Amoebiasis.
 a) Headache and cold
 b) Dysentery
 c) Fever
 d) Severe cold
- (ix) Select the incorrect statement regarding kala-azar.
 a) Kala-azar is caused by Leishmania donovani
 b) Kala-azar is transmitted by the bite of male sandflies
 c) Kala-azar occurs primarily in rural Latin America
 d) Kala-azar can be diagnosed by finding amastigotes in bone marrow
- (x) What is the primary goal of a Quality Management System (QMS) in a laboratory?
 a) To ensure accurate and reliable test results
 b) To maximize the number of tests performed daily
 c) To reduce laboratory costs by skipping quality checks
 d) To speed up sample processing at any cost
- (xi) Which symptom is most characteristic of viral dysentery?
 a) Bloody diarrhea
 b) Skin rash
 c) Joint pain
 d) High blood pressure
- (xii) What is the role of calibration in laboratory quality control?
 a) To adjust and verify the accuracy of instruments
 b) To increase errors in measurements
 c) To avoid using reference standards
 d) To replace regular maintenance
- (xiii) Which of the following can negatively impact quality control in a laboratory?
 a) Proper documentation
 b) Regular equipment maintenance
 c) Using expired reagents
 d) Following SOPs
- (xiv) Which of the following tests is used to detect occult blood in stool?
 a) Benedict's test
 b) Guaiac test
 c) Biuret test
 d) Iodine test
- (xv) Which microorganism is commonly detected in stool examination for bacterial infections?
 a) Staphylococcus aureus
 b) Escherichia coli
 c) Streptococcus pneumoniae
 d) Mycobacterium tuberculosis

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Mention the causative agent. Mention the clinical features of Ascariasis. (3)
3. By which methods HIV Infection is monitored in a Laboratory ? (3)
4. Distinguish between laminar air flow and biosafety cabinet. (3)
5. Write about the procedure of saline preparation for stool examination. (3)
6. Explain why positive test result need to be confirmed again by another test. (3)

OR

Explain why open flame cannot be used in a BSC. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Explain the process of Leishmann's staining for the detection of malarial parasite. (5)
8. What can be the possible clinical conditions behind diarrhoea with pus & translucent gelatinous mucous in stool (5)

9. A patient with diabetes frequently experiences oral thrush (a form of candidiasis). What steps should be taken to manage and prevent recurring infections? (5)
10. How would you interpret Malaria from a Blood smear ? (5)
11. How would you differentiate among Preanalytical, Analytical and postanalytical errors? (5)
Give suitable example to each.
12. Compare and contrast between random error and systemic error with proper examples. (5)

OR

Classify pathogens into risk groups based on biosafety levels and write about appropriate precautions advisable for each level. (5)

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