



KENYATTA UNIVERSITY

EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE (MEDICAL LABORATORY SCIENCE)

HML 316: MEDICAL MYCOLOGY

1ST SEMESTER 2022/2023

TIME: 2 HOURS

INSTRUCTIONS:

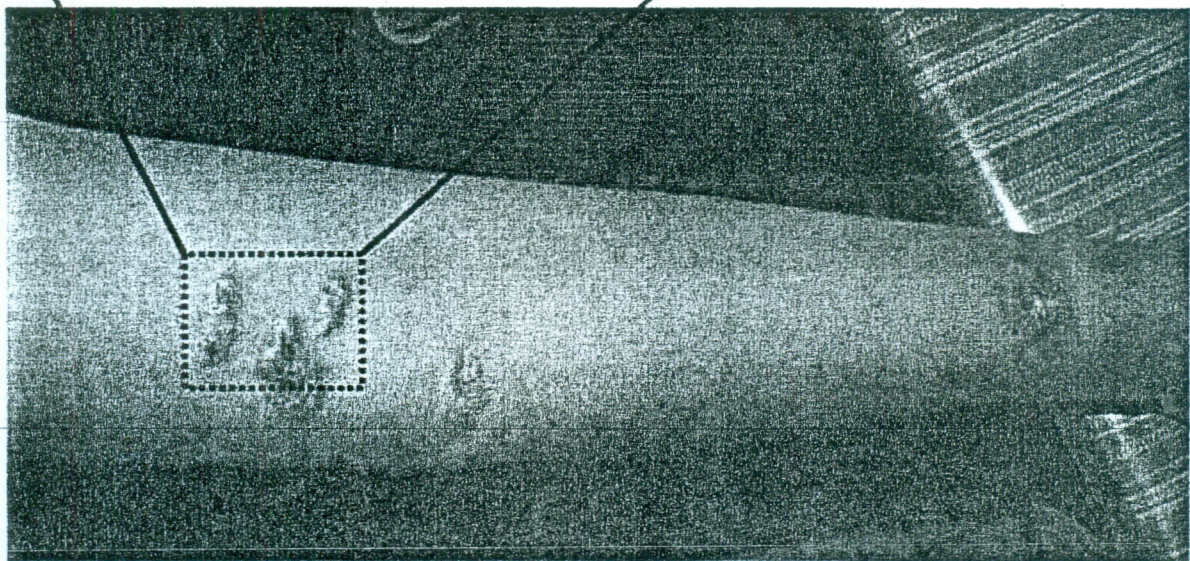
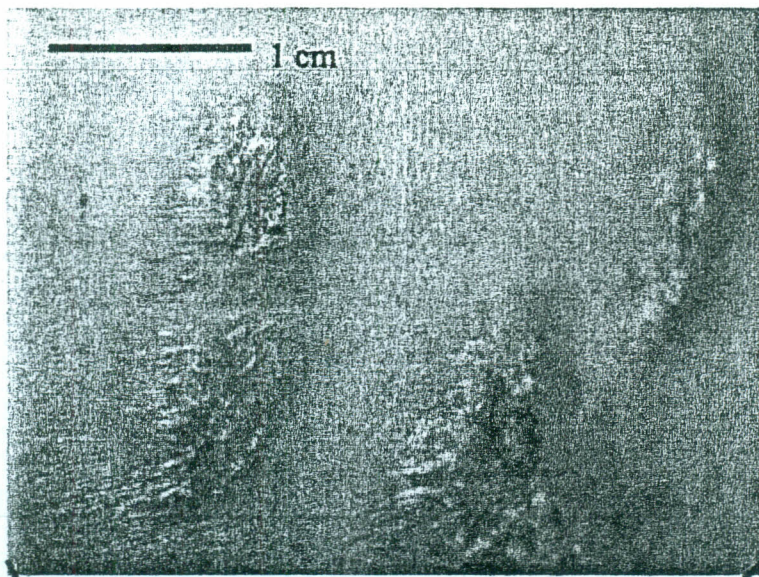
SECTION A: ANSWER ALL QUESTIONS (4 MARKS EACH)

1. Outline the clinical manifestations of Sporotrichosis. (4 Marks)
2. Explain the collection of blood and bone marrow specimens for fungal analysis. (4 Marks)
3. Describe the management and treatment of Tinea cruris. (4 Marks)
4. Outline the factors that affect the production of mycotoxins. (4 Marks)
5. Give the one most morphological or cultural characteristic that would allow one to clearly distinguish between the following fungi.
 - a. *Histoplasma capsulatum* and *Coccidioides immitis*
 - b. *Paracoccidioides brasiliensis* and *Blastomyces dermatitidis*
 - c. *Malassezia furfur* and *Loboa loboa*
 - d. *Cryptococcus neoformans* and *Candida albicans* (4 Marks)

SECTION B. ANSWER ANY ONE QUESTION (20 MARKS EACH)

6. An AIDS patient is suffering from fungal meningitis. Spinal fluid is removed and sedimented by centrifugation. The spinal fluid is turbid but a few yeast cells are obtained and cultured. After culture, translucent, smooth gelatinous color, mucoid and cream in color colonies were observed. You suspend some yeast cells in India ink and examine this on a slide. Microscopic examination indicates the presence of a capsule around the yeast cell. Based on these test results:
- a. Identify and classify the disease described above (2 Marks)
 - b. State the fungal agent and its mode of transmission (3 Marks)
 - c. Describe the clinical presentations of the disease above (10 Marks)
 - d. Describe the management and treatment of the disease (5 Marks)

7. Use the diagrams below and answer the following questions.



- Identify the fungal agent and the disease presented in the diagram (2 Marks)
- Describe the clinical presentations of the disease (8 marks)
- Describe the laboratory diagnosis (6 Marks)
- Explain the management and treatment of the disease (4 Marks)

ON C: ANSWER ALL QUESTIONS IN THE ANSWER BOOKLET (1/2 MARK

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.....has been an excellent method in determining serum concentration of antifungal agents especially in patients with renal or liver problems.

- a) High Performance Liquidchromatography
- b) Microscopy
- c) Thin Layer chromatography
- d) Mass spectrometry

2. With regard to germ tube test, the yeast is inoculated by jabbing appropriate agar known as

- a) Cornmeal with tween 80
- b) Sabourauds Dextrose agar
- c) Potato Dextrose agar
- d) Germ tube agar

3. Coccidioidomycosis is caused bywhich is a soil inhabiting fungus.

- a) *Coccidioidesbrasiliensis*
- b) *Coccidioidesdermatitidis*
- c) *Coccidioidesimmitis*
- d) *Coccidioidesneoformans*

4. Acute mycotoxicosis presents with the following symptoms except.....

- a) Delayed development in children
- b) Vomiting
- c) Coma
- d) Diarrhoea

5. Urea is hydrolyzed by some yeast to form ammonia (pH increases) which turns media from yellow to.....

- a) Dark pink
- b) Red
- c) Pale green
- d) Purple

6. Which of the following diseases results to extensive destruction of facial features and ulcerated lesions in the pharyngeal mucosa?

- a) *P. brasiliensis*
- b) Paracoccidioidomycosis
- c) Coccidioidomycosis
- d) Pulmonary blastomycosis

7. Which of the following fungal agent is anthropophilic?

- a) *Trichophytoninterdigitale*.
- b) *Tineaunguium*
- c) *Epidermophyton*
- d) *Microsporiumcanis*.

8. Generally tube media is used rather than plated media due to the following except.....

- a) Easy of preparation
- b) Ease of storage
- c) Less chance for dehydration
- d) There is less chance for spore release into the environment.

9. Benzoic acid has antifungal properties, but must be combined with a keratolytic agent such as in.....

- a) Whitfield's ointment
- b) Ciclopirox
- c) Crystal violet
- d) Potassium iodide

10. Reyes syndrome is an acute aflatoxicosis which presents withand fatty degeneration of viscera.

- a) Encephalopathy
- b) Paranasal sinus phaeohyphomycosis
- c) Liver cancer
- d) Death

11. With *Cryptococcus*, fermentation of sugar is negative; assimilation of nitrate is variable and assimilation of inositol is.....

- a) Positive
- b) Negative
- c) Variable
- d) Pink

12. In patients with AIDS, skin manifestation represents the second most common symptom of*Cryptococcosis*

- a) Disseminated
- b) Cutaneous
- c) Systemic
- d) Visceral

13. Which infection results to extensive destruction of facial features and ulcerated lesions also develop in the pharyngeal mucosa?

- a) Mucocutaneous paracoccidioidomycosis
- b) *Histoplasma capsulatum*
- c) Lymphonodular paracoccidioidomycosis
- d) Pulmonary paracoccidioidomycosis

14. Why should collected hair, skin and nails samples not be stored in closed tubes?

- a) Due to overgrowth of contaminating bacteria and saprobic fungi in a moist environment.
- b) Dermatophytes are destroyed by high temperatures
- c) Dermatophytes will overgrow
- d) Samples will not be viable for analysis

What is the clinical manifestation of *Hortea werneckii* fungal infection?

White nodules

Endothrix

- c) Black hard nodules
- d) Brown to black macules

16. Why should CSF not be stored at room temperature.....,

- a) Fungi will continue to replicate
- b) Fungi will not be viable
- c) There will be growth of saprophytic bacteria and opportunistic fungi
- d) None of the above

17. What is the management of black and white piedra?

- a) Initiate systemic therapy with fluconazole
- b) Apply topical nystatin
- c) Use of terbinafine
- d) *Piedra hortae*

18. What is the main clinical presentation of oropharyngeal candidiasis?

- a) Use of broad-spectrum antibiotics
- b) White plaques that resemble milk curd on the buccal mucosa
- c) Pain on swallowing
- d) Erythema with a creamy white curd like discharge

19. Which infection is characterized by the development in tissue of dematiaceous (brown pigment), planate dividing and rounded sclerotic bodies?

- a) Mycotia mycetoma
- b) Histoplasmosis
- c) Chromoblastomycosis
- d) Cryptococcosis

20. The toxicity exhibited by mycotoxins includes one of the following. Which one is it?

- a) Fatal illnesses accompanied with signs such as coughing
- b) High temperature
- c) Fumonisin
- d) Teratogenic