



TECHNICAL UNIVERSITY OF MOMBASA
FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

UNIVERSITY EXAMINATION FOR:

DEGREE

AML 4307 : MEDICAL MYCOLOGY

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2019

TIME: 2 HOURS

DATE: Pick Date Aug 2019

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **TWO** Section(s). Attempt ALL questions.

Circle the correct answer in section A.

Section A (30 Marks)

1. α - (1-3)- glucan is a fungal component associated with_____
 - a) Thermotolerance
 - b) virulence
 - c) dormancy
 - d) Life cycle
 - e) Resistance to phagocytosis

2. The following statements on *Candida albicans* are true except
 - a) It is Unicellular
 - b) It can cause opportunistic infections
 - c) It is part of vaginal flora
 - d) It is Gram negative
 - e) It can produce a pseudohyphae

3. Which of the following structure is detected by Indian Ink staining technique?
- Mycelium
 - Hyphae
 - Germ tube
 - Capsule
 - spores
4. Zygosporangium is a thick spore which is produced by _____
- Binary fission
 - Asexually by fragmentation
 - Sexually by the fusion of two hyphae
 - Mating of motile spores
 - Conidia
5. Which of the following does not confirm occurrence of an opportunistic fungal infection?
- Isolation of different strains in all culture tubes
 - Isolation of same strain in all culture tubes
 - Repeated isolation of same strain in multiple specimens
 - Isolation of same strain from different sites
 - Serological evidence
6. Which of the following fungi is edible?
- Candida* species
 - Trichophyton* species
 - Claviceps purpurea*
 - Cryptococcus neoformans*
 - Agaricus bisporus*
7. The function of 1.5% agar in fungal slant media is _____
- To inhibit other fungi
 - To produce semi solid medium
 - To inhibit bacteria
 - To provide amino acids
 - To solidify media
8. Sporotrichosis is mainly caused by _____
- Inhalation
 - Using damp towels
 - Skin contact
 - a thorn prick
 - Sexual transmission

9. Parrots can be a good source for the transmission of _____
- a) *Pneumocystis carinii*
 - b) *Candida albicans*
 - c) *Coccidioides immitis*
 - d) *Rhizopus oryzae*.
 - e) *Penicillium species*
10. The following is true about subcutaneous mycoses except _____ -
- a) The infection is superficial
 - b) Fungal infections beneath the skin.
 - c) Caused by saprophytic fungi that live in soil or on vegetation.
 - d) Infection occurs by implantation of spores or mycelial fragments into a skin wound.
 - e) Can spread to lymph vessels.
11. The following statements are on subcutaneous mycoses except _____ :
- a) Fungal infections are superficial
 - b) Fungal infections beneath the skin.
 - c) Caused by saprophytic fungi that live in soil or on vegetation.
 - d) Infection occurs by implantation of spores or mycelial fragments into a skin wound.
 - e) Can spread to lymph vessels.
12. The following are predisposing factors for fungal infection except _____
- a) Cholera
 - b) HIV status
 - c) Pregnancy
 - d) Prolonged use of antibiotics
 - e) Cancer
13. Which one of the following molecule is targeted by antifungal drugs?
- a) Ergosterol
 - b) Peptidoglycan
 - c) lipase
 - d) Keratinase
 - e) Phospholipids

14. Which of the following media is used in the differentiation of *Candida* species?
- a) CLED
 - b) Brain heart infusion agar
 - c) Chrom agar
 - d) Potato dextrose agar
 - e) Sabouraud
15. The following statement on collection of specimen from superficial mycosis except _____
- a) Clean the part with 70% alcohol
 - b) Moisten the specimen with sterile water
 - c) Collect the material in a sterile paper or a sterile petridish to -
 - d) Allow drying of the specimen
 - e) Reduce bacterial contamination
16. The first antibiotic to be discovered was obtained from _____
- a) *Penicillium*
 - b) *Cephalosporium*
 - c) *Alterneria*
 - d) *Neurospora*
 - e) *Aspergillus*
17. All of the following statements are true about mycotoxins except that the toxins _____
- a) Destroyed on cooking
 - b) Can be detected in animal feed
 - c) Are produced by members of the deuteromycetes
 - d) Can cause liver disease
 - e) Are not produced by all known fungal species
18. Which of the following spores cause infection through inhalation?
- a) Basidiospores
 - b) Conidia
 - c) Zoospores
 - d) Zygosporos
 - e) Arthrospores

19. Which one of the following fungal disease cause serious pathology of the lower limbs?

- a) Tinea
- b) Aspergilloma
- c) Blastomycosis
- d) Zygomycosis
- e) Madurella

20. Which of the following dermatophyte causes serious infection?

- a) *Cryptococcus neoformans*
- b) *Pneumocystis carinii*
- c) *Histoplasma capsulatum*
- d) *Aspergillus* species
- e) *Trichophyton rubrum*

21. Which of the following medium is used to culture fastidious fungi?

- a) Sabaroud agar with cyclohexamide
- b) Bird seed agar
- c) Czapek agar
- d) Chloramphenicol agar
- e) Potato dextrose agar

22. Which of the following fungi is acid fast positive?

- a) Mycoplasma
- b) Aspergillus
- c) Nocardia species
- d) Mycobacterium
- e) Penicillium

23. Which of the following disease is associated with barefoot people living in the tropics?

- a) Onchomychosis
- b) Tinea capitis
- c) Tinea Barber
- d) Histoplasmosis
- e) Mycotic mycetoma

24. The following statements are correct on Histoplasmosis except _____

- a) The causative agent is *Histoplasma capsulatum*
- b) It is waterborne infections
- c) It is airborne infection
- d) It is transmitted by inhalation of spores in contaminated spores
- e) It is associated with chicken and bat droppings

25. Which one of the following is not a characteristic of the Deuteromycetes?
- a) They reproduce sexually
 - b) Also referred to as imperfect fungi
 - c) No sexual stage is known for these fungi
 - d) Many parasitic fungi fall into this class
 - e) Fungi grow rapidly
26. Which of the following antimicrobial is added in fungal medium?
- a) Gentamicin
 - b) Tetracycline
 - c) Chloramphenicol
 - d) Amphotericin B
 - e) Ampicillin
27. Which of the following glassware is preferred for culturing fungi?
- a) Large petri dish
 - b) Tissue culture bottle
 - c) Standard 20ml Petri dish
 - d) Round bottomed flask
 - e) Test tubes
28. Which of the following fungi cause infection of the groin region?
- a) *Tinea pedis*
 - b) *Tinea corporis*
 - c) *Tinea cruris*
 - d) *Tinea capitis*
 - e) *Tinea favosa*
29. Which one of the following glassware is preferred for antifungal MIC tests?
- a) Microtitre plate
 - b) Petri dish
 - c) Test tube
 - d) Measuring cylinder
 - e) Volumetric flask
30. Which of the following concentration of potassium hydroxide is routinely used in the wet mount for fungi?
- a) 0%
 - b) 10%
 - c) 100%
 - d) 0.5%
 - e) 1.5%

Section B (40 Marks)

31.

- a) Describe the wet mount technique for fungi (5 Marks)
- b) Briefly discuss the challenges caused by *Candida auris*. (5 Marks)
- c) Outline virulence factors of medically important fungi. (10 Marks)

32.

- a) Compare and contrast the different classes of mycosis under the following (20 Marks)
 - i. Pathology
 - ii. Description of fungal pathogens for each of the mycosis
 - iii. Source of infection
 - iv. Laboratory investigation