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University Examinations 2024/2025

THIRD YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICAL LABORATORY SCIENCES

SECOND YEAR FIRST SEMESTER BACHELOR OF MEDICAL LABORATORY SCIENCES

HML 3312/HMU 3212: MEDICAL MYCOLOGY

DATE: JANUARY 2024 **TIME: 3 HOURS**

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 each question on the answer booklet

SECTION A: MULTIPLE CHOICE QUESTIONS (20 marks)

1. Fungi are which type of organisms
   a) Prokaryotic
   b) Eukaryotic
   c) Parasites
   d) Protozoans

2. Choose one that is not part of fungi cell wall.
   a) Chitin
   b) Glucans
   c) Mannans
   d) Peptidoglycan
3. Fungi can be found in which of the following forms
   a) Yeast
   b) Mold
   c) Fungiorods
   d) Both yeast and Mold
4. Fungi that are not known to produce any sexual spores are known as
   a) Basidiomycetes
   b) Zygomycetes
   c) Deutromycets
   d) Ascomycetes
5. In which of the following, asexual reproduction takes place by means of conidia, borne at the tip of hyphae?
   a) Yeast
   b) Penicillium
   c) Penicillium
   d) None of the above
6. What is common among Bacteria, mosses and Fungi
   a) Its mode of nutrition
   b) Presence of cell wall
   c) Autotrophic
   d) Formation of chlorophyll

7. According to five kingdom system which characteristics placed the fungi in a separate kingdom?
   a) Cell wall structure
   b) Nuclear membrane
   c) Nutrition
   d) All the above
8. Which of the following is subcutaneous mycoses
   a) Tinea unguium
   b) Tinea versicolor
   c) Blastomycosis
   d) sporotrichosis
9. Subcutaneous mycoses are caused by fungi that are introduced into subcutaneous tissue through
   a) Trauma
   b) Sterile injection
   c) Oral medication
   d) Food
10. Opportunistic fungal infection is not favoured by which of the following
   a) Diabetes mellitus
   b) Organ transplant
   c) HIV AIDS
   d) H. Pylori infection
11. According to systemic mycology Disseminated disease means
   a) Fungi growth stops
   b) Fungi move from lungs and grow in other areas
   c) Fungi is opportunistic
   d) Fungi growth stops

12.Dermatophytes infect which of the following

a) Lipid cells
b) Protein cells
c) Keratinized structures
d) Cell membrane

13. Transmission of dermatophytes mostly occur through

a) Direct contact
b) Fecal oral route
c) Sexual contact
d) Respiratory aerosols

14. Candida albicans is note worthy as the etiology agent of

a) Valley fever
b) Desert fever
c) Thrush
d) Desert rheumatism

15.Fungi that invade outside layer of the skin or hair are classified as?

a) Superficial
b) Subcutaneous
c) Cutaneous
d) Systemic

16. What is the primary focus of infection for systemic mycoses

a) Heart
b) Lung
c) Skin
d) Liver

17. Tinea unguium is a fungal infection of

a) Nails

b) Skin
c) Legs
d) Hands

18. Which one of the following fungal agents cause mycosis that can be diagnosed by a latex agglutination test on the spinal fluid for capsular polysaccharide antigen.
    a) Cryptococcus neoformans
    b) Histoplasma capsulatum
    c) Aspergillus fumigatus
    d) Candida albicans
19. Which statement regarding the laboratory identification of fungi is correct?
    a) Histoplasma capsulatum typically requires less than 48 hours of incubation to yield positive cultures from clinical specimens.
    b) Since many saprobic (nonpathogenic) molds resemble dimorphic mycotic agents in culture at 30 OC, the identification of putative dimorphic pathogenic fungi must be confirmed by conversion to the tissue form in vitro or by the detection of species-specific antigens or DNA sequence analysis.
    c) A positive germ tube test provides a rapid presumptive identification of Candida glabrata.
    d) Budding yeast cells and abundant pseudohyphae are typical of Pneumocystis jiroveci.
20. All are examples ofmycotoxins except
    a) Aflatoxins
    b) Trichothecenes
    c) Zearalenone
    d) Jiroveci

SECTION B: SHORT ANSWER ALL QUESTIONS (40 MARKS)

1. Define the following terms (5 marks)
    i. Hyphae
    ii. Mycelium

iii. Septa

iv. Septate hyphae

v. Conidia

2. Define the term Dimorphic Fungi. Give 2 examples (3 Marks)
3. Name and explain any 3 types of asexual spores (6 Marks)
4. Name one of the enzymes present in fungi and it's use (3 Marks)
5. List examples of mycoses and state the types of specimens collected for identification of fungi (5 marks).
6. Describe the staining techniques used for identification of fungi and their importance in a mycology laboratory (5 marks)
7. Explain the laboratory diagnoses of systemic mycoses (8 marks)
8. With examples describe sources of mycotoxins (5 marks)

SECTION C: LONG ANSWER QUESTIONS (40 MARKS)

1. Describe in details the main types of reproduction that occur in fungi (10 marks)

b) Explain 5 growth conditions required by fungi (10 Marks)

2.Compare plants, animals and Fungi, considering this component:

- Cell wall
- Chloroplasts
- Plasma membrane
- Food source
- Polysaccharide storage.

Be sure to indicate fungi similarities and differences to plants and animals. (20 marks)

3. Fungi can be classified according to various parameters. Giving two examples in each, discuss 5 basic mode of classification (20 marks)