

NAME \_\_\_\_\_

EID # \_\_\_\_\_

**EXAM 2**  
**April 5, 2005**  
**BIO 329**

**Directions:** All explanations, definitions, and descriptions should be presented in good English. This means complete sentences should be used except when lists or fill-in-the-blanks are required. Spelling of mycological terms should be accurate. Slight misspellings may be overlooked, but major misspellings will result in wrong answers.

1. Multiple choice (30 points @ 2 points each); circle the number of the correct choice.
  - a. Dimorphism is not characteristic of agents of:
    1. dermatophytosis
    2. trichosporonosis
    3. sporotrichosis
    4. chromoblastomycosis
    5. any of the above mycoses
  
  - b. The clinical forms of the dermatophytoses do not include:
    1. tinea unguium
    2. tinea favosa
    3. tinea nigra
    4. tinea cruris
    5. any of the above choices
  
  - c. Whether one uses the broad or restricted definition, one of the following fungi is not considered to be dematiaceous. That fungus is:
    1. *Phialophora verrucosa*
    2. *Cladophialophora bantiana*
    3. *Wangiella dermatitidis*
    4. *Malassezia furfur*
    5. *Hortaea werneckii*
  
  - d. Of the pathogenic fungi you have studied so far, thermal dimorphism is only associated with:
    1. *Wangiella dermatitidis*
    2. *Microsporum canis*
    3. *Sporothrix schenckii*
    4. *Candida albicans*
    5. *Trichosporon asahii*

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- e. Of the pathogenic fungi you have studied so far, the formation of the teleomorph on humans is only associated with:
1. *Malassezia furfur*
  2. *Piedraia hortae*
  3. *Epidermophyton floccosum*
  4. *Phialophora verrucosa*
  5. *Pseudallesheria boydii*
- f. Brain infections of fungal origin in humans without obvious underlying conditions, while rare, are known to be caused by a limited number of dematiaceous (black) fungi. Not included among those fungi is:
1. *Maderella mycetomatis*
  2. *Wangiella dermatitidis*
  3. *Ramichloridium mackenziei*
  4. *Cladophialophora bantiana*
  5. *Phialophora verrucosa*
- g. The stratum corneum is not usually considered to be a main substrate for:
1. *Malassezia furfur*
  2. *Epidermophyton floccosum*
  3. *Trichophyton concentricum*
  4. *Hortaea werneckii*
  5. *Piedraia hortae*
- h. Among the so-called anthropophilic dermatophyte form-species, medical mycologist usually do not include:
1. *Trichophyton rubrum*
  2. *Trichophyton schoenleinii*
  3. *Epidermophyton floccosum*
  4. *Microsporum audouinii*
  5. *Microsporum canis*
- i. Survey data suggest that of the most common form-species of *Candida*, the fewest candidemia isolates are identified as
1. *Candida albicans*
  2. *Candida glabrata*
  3. *Candida krusei*
  4. *Candida tropicalis*
  5. *Candida parapsilosis*

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- j. Among the many different vegetative structures produced by *Candida albicans*, medical mycologists do not include
1. conidiophores
  2. yeast
  3. pseudohyphae
  4. hyphae ("true hyphae")
  5. chlamyospores
- k. Yeast cells are produced by fungi found among most of the higher fungal taxa, (e.g. phyla, subphyla, classes). Nonetheless, no so-called "pathogenic yeasts" are usually included in the taxon:
1. Blastomycetes
  2. Hemiascomycotina
  3. Heterobasidiomycotina
  4. Holobasidiomycotina
  5. Euascomycotina
- l. *Candida albicans* is rarely associated with:
1. urinary tract disease
  2. fungemia
  3. cutaneous and mucocutaneous disease
  4. primary subcutaneous disease
  5. vaginitis
- m. The traditional minimal essential information for the identification of *Candida albicans* does not include
1. growth at 37°C
  2. absence of a capsule
  3. ascospore formation
  4. germ-tube formation in fetal calf serum
  5. chlamyospore formation on Tween 80 agar
- n. Massive crusts of scutula, hyphae and scalp epithelium are most associated with
1. tinea barbae
  2. tinea favosa
  3. tinea nigra
  4. tinea imbricata
  5. tinea manuum

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o. The most common agent of tinea unguium in the United States is:

1. *Trichophyton rubrum*
2. *Microsporum canis*
3. *Epidermophyton floccosum*
4. *Trichophyton tonsurans*
5. None of the above choices

2. Fill in the blanks (30 pts at 2 pts each).

- a. Recently the first four cases of fungemia caused by the newly described form-species *Candida* \_\_\_\_\_ were identified in North America among U.S. patients.
- b. By ascocarp morphology and cytology the agent of pseudallescheriasis is a member of the class \_\_\_\_\_, but by rDNA sequencing and phylogenetic analysis it is a member of the class \_\_\_\_\_.
- c. Comparative morphological, cytological and rDNA sequence analyses of dermatophytic fungi suggest all are members of the teleomorphic genus \_\_\_\_\_.
- d. Phylogenetic analyses of rDNA sequences and derived chitin synthase sequences of *Sporothrix schenckii* suggest that this cleistothecial ascomycetes is in reality a member of the class \_\_\_\_\_.
- e. Mycetomas are usually most associated with the formation in tissue of hyphal aggregates called \_\_\_\_\_.
- f. Although there are many exceptions, initial lesions produced by the traumatic implantation of an agent of chromoblastomycosis into the subcutaneous tissues of healthy humans are usually \_\_\_\_\_, whereas those of an agent of phaeohiphomycosis are \_\_\_\_\_ and those of sporotrichosis are \_\_\_\_\_.
- g. The pathway leading to melanin biosynthesis in *Wangiella dermatitidis* and numerous other dematiaceous pathogens of humans is known as the \_\_\_\_\_ (spell out) biosynthetic pathway.
- h. An infection of the toenail or fingernail caused by a dermatophyte is known clinically as \_\_\_\_\_.
- i. It appears that the main agent of tinea capitis in the United States and Western Europe today is \_\_\_\_\_.
- j. The specialized spores formed by some anthropomorphic dermatophytes on scalp hair are technically termed \_\_\_\_\_.

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k. Disseminated (invasive, deep) candidiasis is generally most associated with \_\_\_\_\_, whereas increased severity of mucosal candidiasis is most associated with \_\_\_\_\_.

3. Short answers/definitions (20 points @ 4 points each). In one or two short sentences.

a. Lymphocutaneous sporotrichosis \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

b. "Pathogenic Yeast" \_\_\_\_\_  
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c. The Onygenales \_\_\_\_\_  
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d. Pityriasis versicolor \_\_\_\_\_  
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\_\_\_\_\_.

e. Mating in *Candida albicans* \_\_\_\_\_  
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\_\_\_\_\_.

4. Essays: Below please find two exam topics for you to respond to in essay fashion. (See comments on page one about sentences and spelling. Please provide your answers on the attached lined sheets.

- a. (12 points): Please compare and contrast the subcutaneous forms of the mycoses chromoblastomycosis and phaeohyphomycosis as they occur in normal healthy hosts. Your essay should provide a definition of each mycosis, mention of one agent for each disease, and the growth form(s) of each of those fungi in subcutaneous lesions. Your answer should not include more than one or two general details about the taxonomy of the fungi you mention, or details of their morphologies in *in vitro* cultures.
- b. (8 points): Please describe the condition known as gray-patch ringworm. Your answer should include mention of its two most common agents, its symptoms, its most common host, methods of detection, and some common therapies.