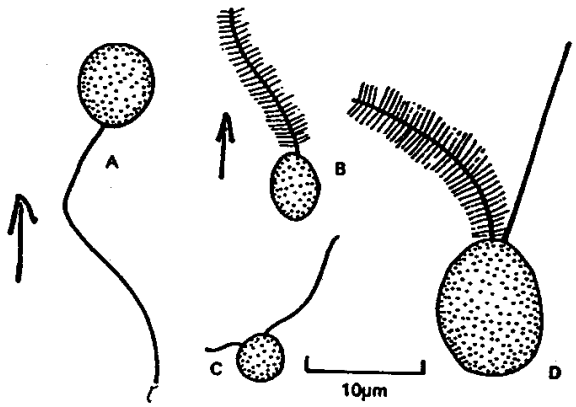
(40)

NAME _____

EXAM I
February 12, 1997
MIC 321

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. (13.5 @ 1.5 pts each taxon) You are given four organisms by your employer who asks if they are fungi? They were all cultured from a lake environment that was associated with a fish kill. At first glance they all seem to be fungal-like and fit the definition of fungi. However, after much work you determine that each is zoosporic. Therefore, you examine the characteristics of the zoospores and then classify each for your preliminary report. In the blanks provided, identify the taxa requested for each zoospore type illustrated.



A. 1. Kingdom _____

2. Subkingdom _____

3. Phylum _____

B. 4. Kingdom _____

5. Phylum _____

C. 6. Kingdom _____

7. Phylum _____

D. 8. Kingdom _____

9. Phylum _____

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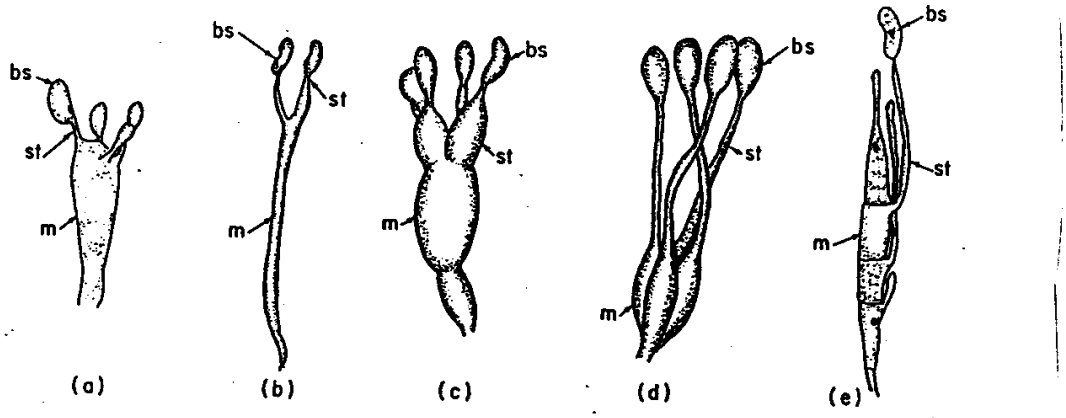
2. (16.5 pts @ 1.5 pts each taxon) Next you are given four different collections of diverse materials by your employer who says that each is probably a "fruit body part" of a different fungus of some sort, which the physiologists and biochemists have reported produce potentially important antibiotics. However, they have no ideas about the nature of these fungi, if that is what they are. He asks you for some preliminary thoughts. Thus, you examine them and then determine that each is indeed most likely a fungal hyphal aggregate. Your microscopic examinations reveal spores, which you determine after considerable effort are produced on cells that your cytology suggests are all meiosporangia. However, each meiosporangium is different. In the blanks provided, list the taxa designations for these meiosporangia as requested.



a-e. 10. Kingdom _____

11. Subkingdom _____

12. Phylum _____

13. Subphylum _____

a-c. 14. Class _____

d-e. 15. Class _____

a. 16. Order _____

b. 17. Order _____

c. 18. Order _____

d. 19. Order _____

e. 20. Order _____

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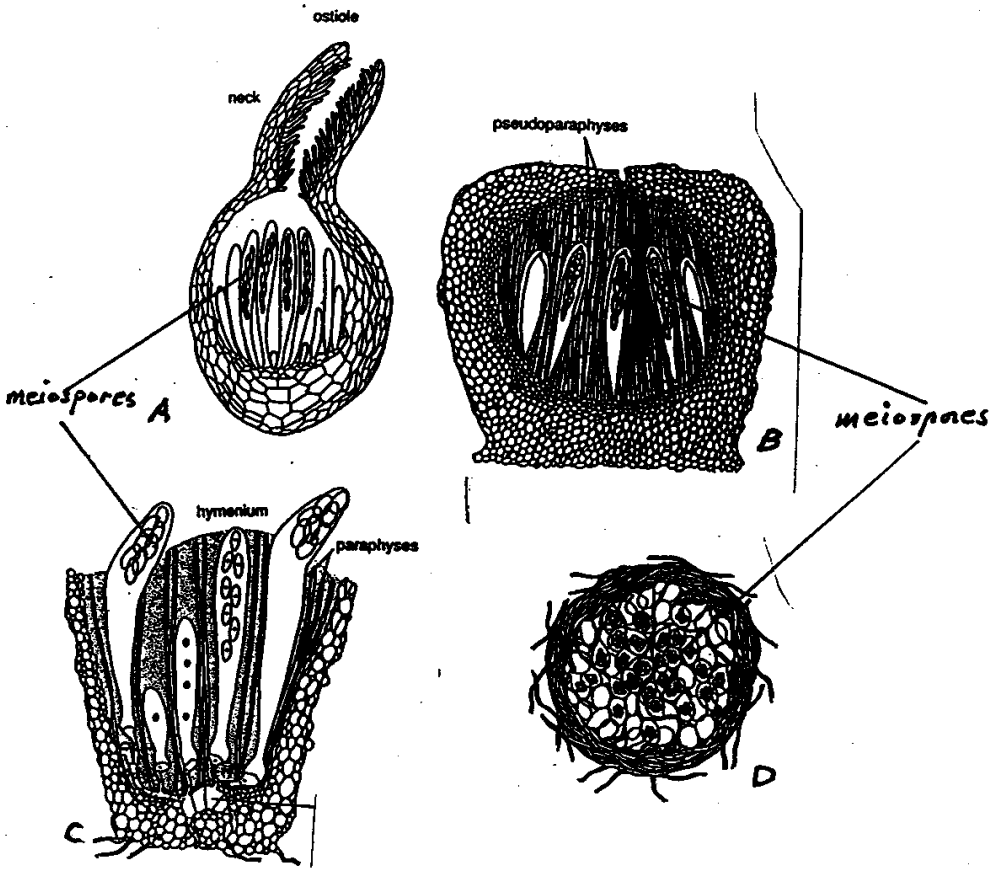
3. (12 pts @ 1.5 pts each taxon) Finally your employer tells you he has some more tissue-like structures that have been sent to the company, because they were found on some rich friend's property and he is curious about what they might be. Your employer implores you to help him satisfy his friend's curiosity by identifying their general major taxon affinities. After much study you decide they are endogenous meiospore producers and that the tissue structures are representative of four different major fungal taxa. Again, identify the taxa requested for each structure illustrated.



A-D. 21. Kingdom _____

22. Subkingdom _____

23. Phylum _____

24. Subphylum _____

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A. 25. Class _____

B. 26. Class _____

C. 27. Class _____

D. 28. Class _____

4. (1.5 pts per blank; 18 pts total) More fill in the blanks.

   a. Fungi that produce endogenous mitospores with cell walls and dormancy qualities in a cell called a sporangium are members of the phylum _____.

   b. Fungi that produce endogenous meiospores, but no ascocarps (ascomas), are classified in the class _____.

   c. Coenocytic fungi that are haploid and contain in their cytoplasm nuclei with opposite mating-type gene sets are referred to genetically as _____.

   d. Diploid cells with different alleles at the same gene locus on homologous chromosomes are referred to genetically as _____.

   e. The so-called simple septa of some fungi have a central pore and nearby associated organelles called _____.

   f. Fungi that are sexually self-fertile (can carry out karyogamy and meiosis after germination and growth of a uninucleate haploid spore) are said to be _____.

   g. The odd structures on the sides of some Basidiomycota hyphae, which perpetuate the so-called N + N state in those fungi, are called _____.

   h. Dikaryotic spores that germinate to produce exogenous meiospores on the germ tube are characteristic of the fungal orders _____ and _____.

   i. Fungal and algal symbiotic associations are called _____, whereas fungal and plant symbiotic associations are called _____.

   j. When fungi and fungal-like protists convert their entire vegetative somatic structure (thallus) into a reproductive cell they are said to be _____.

5. (15 pts) On the answer sheets and in essay form, explain the concept of the Fungi Imperfecti taxon, pointing out why it is unique, and why it is useful. Include in your answer discussion involving the terms "form", anamorph, teleomorph, holomorph, Blastomycetes, Hyphomycetes, Coelomycetes and Mycelia Sterilia.

6. (15 pts) On the answer sheets and with diagrammatic drawings, labels and arrows, if necessary, depict how the dikaryotic state is perpetuated in some Euascomycotina by crozier formation and ultimately leads to the production of <u>many</u> asci from one pair of opposite mating-type nuclei of a single ascogenous hypha.

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Definitions (2 pts each, total 10 pts). Please answer in one complete sentence.

1. Fungus:

2. Mycelium:

3. Zoospore:

4. Dolipore septum:

5. Yeast: