

# BOT 125 - Plant Morphology

## Fall 2000, Midterm

1. Read these directions before you begin.
2. Write your name on your Scantron sheet and make sure it is on the 8½×11 exam guide (tests without names will not be graded).
3. Write the number of your lab section on the Scantron sheet in the box marked "Hour" (sect. 1 = MW 12-3 [Dr. Clark], sect. 2 = MW 3-6 [Kim]). Scantrons without lab sections will have one point deducted from the total.
4. Check this test to make sure it has all pages, 1-4.
5. Mark all answers on the Scantron sheet. There is only one correct answer to each question.
6. When you are finished, turn in both the Scantron and the 8½×11 exam guide on the front table. Please keep this sheet.

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1. \_\_\_\_\_ has been used to produce wine, beer, and bread for at least 8,000 years.
    - a. *Agaricus brunnescens*
    - b. *Aspergillus flavus*
    - c. *Penicillium notatum*
    - d. *Phytophthora infestans*
    - e. *Saccharomyces cerevisiae*
  2. \_\_\_\_\_ of the \_\_\_\_\_ are never flagellated.
    - a. Clonal spores ... Oomycota
    - b. Clonal spores ... Phaeophyta
    - c. Gametes ... Chytridiomycota
    - d. Gametes ... Phaeophyta
    - e. Gametes ... Rhodophyta
  3. \_\_\_\_\_ ordinarily have a single active flagellum used in swimming.
    - a. Dictyosteliomycota
    - b. Dinophyta
    - c. Euglenophyta
    - d. Rhodophyta
    - e. Zygomycota
  4. \_\_\_\_\_ produce \_\_\_\_\_ by \_\_\_\_\_.
    - a. Gametophytes ... gametes ... meiosis
    - b. Gametophytes ... meiospores ... mitosis
    - c. Sporophytes ... gametes ... mitosis
    - d. Sporophytes ... meiocytes ... syngamy
    - e. Sporophytes ... meiospores ... meiosis
  5. \_\_\_\_\_ are **always** haploid.
    - a. Gametes
    - b. Meiocytes
    - c. Meiosporangia
    - d. Sporophytes
    - e. Zygotes
  6. A basidioma (basidiocarp) is made of
    - a. dikaryotic mycelium
    - b. diploid mycelium
    - c. diploid plasmodium
    - d. haploid mycelium
    - e. haploid plasmodium
  7. A monophyletic group
    - a. consists of a common ancestor and all its descendants
    - b. consists of a common ancestor and some, but not all, of its descendants
    - c. excludes its common ancestor
    - d. is an artificial group, invented by humans
    - e. is *not* the same thing as a clade
  8. A single individual organism produces both clonal spores and meiospores. The clonal spores are \_\_\_\_\_ and the meiospores are \_\_\_\_\_. (Think this one through ...)
    - a. diploid ... diploid
    - b. diploid ... haploid
    - c. haploid ... diploid
    - d. haploid ... haploid
    - e. neither of their ploidy levels can be determined with the information given
  9. A unicellular organism has alginic acids in its cell walls and brown plastids. It is most likely a member of the phylum
    - a. Bacillariophyta
    - b. Euglenophyta
    - c. Oomycota
    - d. Phaeophyta
    - e. Rhodophyta
  10. An ascus ordinarily gives rise to
    - a. 4 basidiospores
    - b. 64 aplanospores
    - c. 8 meiospores
    - d. hundreds of clonal spores
    - e. non-flagellated sperm cells
  11. An auxospore, an oospore, and a zygospore walk into a bar. The bartender says, "You'll have to leave. We don't serve \_\_\_\_\_ here."
    - a. clonal spores
    - b. eggs
    - c. meiocytes
    - d. meiospores
    - e. zygotes

12. An organism has septate haploid filaments. If it forms oospores and is not photosynthetic, its cell walls are probably made of
- cellulose
  - chitin
  - nothing—it has no cell walls
  - peptidoglycan
  - silica
13. Apothecia, cleistothecia, and perithecia are all examples of
- ascomata
  - basidiomata
  - gametangia
  - parenchyma
  - zygomata
14. Ascogenous hyphae come from the \_\_\_\_\_, are \_\_\_\_\_, and form the \_\_\_\_\_.
- ascogonium ... dikaryotic ... ascoma (ascocarp)
  - ascogonium ... diploid ... zygosporangium
  - ascospores ... dikaryotic ... ascoma (ascocarp)
  - ascospores ... haploid ... oospores
  - ascus ... haploid ... zygote
15. Bangiophyceae is a \_\_\_\_\_ and Fucaceae is a \_\_\_\_\_.
- Class ... Family
  - Family ... Phylum
  - Genus ... Class
  - Order ... Class
  - Phylum ... Order
16. Because euglenas have \_\_\_\_\_ eyespots, they can't see \_\_\_\_\_.
- blue ... red
  - green ... yellow
  - red ... blue
  - red ... red
  - transparent ... anything
17. Because karyogamy does not occur immediately after plasmogamy, both the \_\_\_\_\_ and \_\_\_\_\_ have \_\_\_\_\_.
- Ascomycota ... Basidiomycota ... true parenchyma
  - Basidiomycota ... Ascomycota ... a dikaryotic phase
  - Chytridiomycota ... Zygomycota ... flagellated clonal spores
  - Phaeophyta ... Bacillariophyta ... brown chloroplasts
  - Zygomycota ... Ascomycota ... sporophytes
18. Because the Bacillariophyta effectively have a(n) \_\_\_\_\_ sexual cycle, the only \_\_\_\_\_ cells are \_\_\_\_\_.
- alternation of generations ... diploid ... gametes
  - diploid dominant ... haploid ... gametes
  - diploid dominant ... haploid ... zygotes
  - haploid dominant ... diploid ... zygotes
  - haploid dominant ... haploid ... zygotes
19. Biologists can distinguish homology from homoplasy because
- all homologies tell parts of the same story
  - all homologies look alike
  - all homoplasies tell parts of the same story
  - all homoplasies look alike
  - homoplasy exists independent of human perception
20. Botanists learn the ploidy level of cells, organs, and organisms by
- counting their chromosomes
  - looking them up in a book
  - looking to see if they are drawn in red or green
  - sequencing their DNA
  - understanding their place in the sexual life cycle
21. Diatomaceous earth, used as a \_\_\_\_\_ and an abrasive, is formed of the fossil cell walls of \_\_\_\_\_.
- building material ... Rhodophyta
  - detergent ... Rhodophyta
  - filtering agent ... Bacillariophyta
  - fish poison ... Dinophyta
  - food additive ... Bacillariophyta
22. Egg cells of the Bacillariophyta
- are diploid
  - are produced by meiosis
  - are produced by mitosis
  - are the end products of syngamy
  - are also called auxospores
23. Food is stored in Fungi in the form of
- floridean starch
  - glycogen
  - laminarin
  - mannitol
  - paramylon
24. Gametes are the only haploid cells in the
- Ascomycota
  - Basidiomycota
  - Chytridiomycota
  - Oomycota
  - Zygomycota

25. Homoplasy is
- a fact of nature, not the result of human judgment.
  - false analogy.
  - false homology.
  - the result of common ancestry.
  - the way we recognize evolutionary kinship.
26. How do Dictyosteliomycota increase their population numbers?
- Myxamoebae divide by mitosis.
  - Clonal spores are dispersed by the wind.
  - Meiospores are dispersed by the wind.
  - The mycelium grows vegetatively.
  - Zoospores divide by meiosis.
27. If the pizza guy brings a thick-crust mushroom and olive pizza, the two fungi it most likely contains are
- Agaricus brunnescens* and *Saccharomyces cerevisiae*
  - Olea europaea* and *Foeniculum vulgare*
  - Penicillium notatum* and *Pneumocystis carinii*
  - Phytophthora infestans* and *Aspergillus niger*
28. If you were isolating pigments from a brown plastid, you would **not** expect to find
- carotenoid pigments
  - chlorophyll a
  - chlorophyll c
  - fucoxanthin
  - phycobilins
29. In marine coastal waters of temperate regions such as California, the ecologically dominant seaweeds are members of the phylum
- Euglenophyta
  - Myxomycota
  - Phaeophyta
  - Rhodophyta
  - Zygomycota
30. In organisms with alternation of generations, the meiosporangia, gametangia, and clonal sporangia may look similar. This is because they
- are all haploid.
  - are all multicellular.
  - are formed by the same genetic and developmental pathways.
  - are formed on the same sporophytes.
  - have the same function.
31. In rockweeds (Phaeophyta) such as *Fucus*, the \_\_\_\_\_ (swollen branch tips) often contain chambers called \_\_\_\_\_.
- conceptacles ... oogonia
  - conceptacles ... receptacles
  - oogonia ... paraphyses
  - receptacles ... conceptacles
  - receptacles ... spermatangia
32. Many species of both the Ascomycota and Basidiomycota have a layer of meiosporangia called the
- antheridium
  - conidium
  - hymenium
  - plasmodium
  - zoosporangium
33. Parenchyma consists of
- dikaryotic mycelium
  - flat sheets of cells, one cell thick
  - masses of clonal sporangia
  - three-dimensional tissue made of compacted filaments
  - three-dimensional tissue that results from cells dividing in three dimensions
34. *Penicillium* produces antibiotics that kill bacteria. This is so that
- people will extract antibiotics from it to fight infections.
  - it can easily contaminate petri dishes by destroying the organisms that already live there.
  - it can more easily grow on oranges, which are prokaryotic like bacteria.
  - it will kill bacteria that would otherwise compete for its food.
  - it will reproduce clonally.
35. *Phytophthora infestans* causes \_\_\_\_\_ as a consequence of increased \_\_\_\_\_.
- aflatoxin ... salinity
  - eutrophication ... nitrogen fixation
  - late blight of potato ... clonal reproduction
  - moldy oranges ... sexual reproduction
  - the red tide ... sexual reproduction
36. Plasmodial slime molds (Myxomycota) obtain nutrition from
- digesting and absorbing decaying vegetation
  - dumpster-diving
  - ingesting bacteria
  - parasitizing fungi
  - photosynthesis
37. Sexual reproduction *always* includes
- eggs and sperm
  - meiosis and syngamy
  - mitosis and ontogeny
  - ontogeny and phylogeny
  - wine and candles
38. Tetraspores come from \_\_\_\_\_ and give rise to \_\_\_\_\_.
- carposporophytes ... gametophytes
  - carposporophytes ... tetrasporophytes
  - gametes ... carposporophytes
  - tetrasporophytes ... carposporophytes
  - tetrasporophytes ... gametophytes

39. The \_\_\_\_\_ are a group of mainly \_\_\_\_\_, with a few Basidiomycota, that have traditionally been kept together because their sexual cycles were not known.
- Aplanomycota ... Zoomycota
  - Deuterium oxide ... Myxomycota
  - Fungi Imperfecti ... Ascomycota
  - Oomycota ... Zygomycota
  - Zygomycota ... Oomycota
40. The "slug" of the Dictyosteliomycota
- can eat organisms as large as a small kitten
  - is a single large multinucleate cell
  - is an aggregation of many separate cells
  - is involved in sexual reproduction
  - turns into a meiosporangium
41. The clonal spores of the Oomycota
- are called conidia
  - are called zygospores
  - are haploid
  - have no flagella
  - have two flagella each, one tinsel and one whiplash
42. The filaments that form a mycelium are called
- coenocytes
  - dikaryons
  - heterokonts
  - hyphae
  - myconemata
43. The gametophyte of a brown alga with isomorphic alternation of generations is filamentous. The sporophyte will always be
- diploid-dominant
  - filamentous
  - haploid
  - larger
  - parenchymatous
44. The plasmodium of Myxomycota develops from the \_\_\_\_\_, thus, it must be \_\_\_\_\_.
- egg cell ... haploid
  - meiocyte ... haploid
  - meiospore ... diploid
  - zygote ... haploid
  - zygote ... diploid
45. The structure in many Basidiomycota that forms during mitosis and ensures that each new cell gets a nucleus from each parent is called a(n)
- ascogonium
  - basidioma (basidiocarp)
  - clamp connection
  - collateral bundle
  - mycelium
46. The sugar alcohol mannitol is used for
- defense against predators by Myxomycota.
  - food storage in Rhodophyta.
  - food storage in rockweeds (Phaeophyta).
  - food transport in Ascomycota.
  - food transport in kelps (Phaeophyta).
47. We can estimate the amount of evolutionary kinship between any two organisms by looking at
- how primitive or advanced they are
  - the homologies they share
  - their fossil record
  - their place in the classification in a textbook
  - their place on a cladogram
48. We know that the eukaryotes are a monophyletic group because they all share the homology of
- chloroplasts
  - chromosomes
  - DNA
  - flagella
  - multicellularity
49. You are attempting to eat Kolossal® Kow® Kustard™ nutrition-free partially-frozen artificially brown-flavored milk-like dessert food product. You would not be surprised to find that it owes its gelatinous texture to \_\_\_\_\_ obtained from members of the Phylum \_\_\_\_\_.
- carrageenan ... Phaeophyta
  - carrageenan ... Rhodophyta
  - chitin ... Rhodophyta
  - laminarin ... Rhodophyta
  - mannitol ... Myxomycota
50. You are taking a lab exam. The card says "What is the ploidy level of this zygote of *Glyptostrobos* of the Coniferophyta?" You were certain that Coniferophyta weren't supposed to be on the exam. In fact, Dr. Clark never even lectured about them. But you have to put down an answer anyway. The correct answer is
- dikaryotic
  - diploid
  - gamete
  - haploid
  - zygote