

# BOT 125 - Plant Morphology

## Spring 1997, Midterm

1. Read these directions before you begin.
2. Write your name on your Scantron sheet. **Tests without names will not be graded.**
3. Write your **lab** section on the Scantron sheet, in the box that says "Hour" (**sect. 1** = MW 12-3, **sect. 2** = TTh 1-4, **sect. 3** = TTh 4-7). **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 the Scantron on the front table. **Please keep this sheet.**

1. \_\_\_\_\_ are found in the Cyanophyta and are specialized for \_\_\_\_\_.
  - a. Carpospores . . . sexual reproduction
  - b. Heterocysts . . . nitrogen fixation
  - c. Oospores . . . survival
  - d. Trumpet cells . . . nutrient transport
  - e. Zoospores . . . dispersal
2. \_\_\_\_\_ are **always** diploid.
  - a. Gametangia
  - b. Gametes
  - c. Meiocytes
  - d. Meiospores
  - e. Zoospores
3. \_\_\_\_\_ is a Family and \_\_\_\_\_ is a Class.
  - a. Brassicaceae . . . Ginkgophyta
  - b. Chrysophyceae . . . Heterobasidiomycetes
  - c. Epacridaceae . . . Magnoliopsida
  - d. Magnoliopsida . . . Magnoliales
  - e. *Penicillium* . . . *Phytophthora*
4. \_\_\_\_\_ is important in the preparation of bread and beer.
  - a. *Agaricus brunnescens*
  - b. *Aspergillus flavus*
  - c. *Penicillium notatum*
  - d. *Phytophthora infestans*
  - e. *Saccharomyces cerevisiae*
5. \_\_\_\_\_ ordinarily have two flagella located in grooves on the cell wall
  - a. Acrasiomycota
  - b. Cyanobacteria
  - c. Euglenophyta
  - d. Pyrrophyta
  - e. Zygomycota
6. "Alternation of generations" refers to alternation of
  - a. asexual and sexual reproduction
  - b. diploid, gamete-producing generations with haploid, meiospore-producing generations
  - c. diploid hyphae with dikaryotic hyphae
  - d. haploid, gamete-producing generations with diploid, meiospore-producing generations
  - e. James T. Kirk and Jean-Luc Picard
7. "Red" chloroplasts
  - a. are found in the Chlorophyta
  - b. are similar to free-living cyanobacteria
  - c. have chlorophylls a, b, c, and d
  - d. have fucoxanthin as an accessory pigment
  - e. show no similarities to free-living prokaryotes
8. A basidium ordinarily gives rise to
  - a. 4 basidiospores
  - b. 64 aplanospores
  - c. 8 meiospores
  - d. hundreds of asexual spores
  - e. non-flagellated sperm cells
9. **All** eukaryotes have
  - a. a nucleus
  - b. basal bodies
  - c. cell walls
  - d. chloroplasts
  - e. mitochondria
10. An auxospore, an oospore, and a zygospore are all examples of
  - a. asexual spores
  - b. gametes
  - c. meiospores
  - d. zoospores
  - e. zygotes
11. An *Ectocarpus* (Phaeophyta: isomorphic group) **gametophyte**
  - a. may have unilocular sporangia
  - b. will always have unilocular sporangia
  - c. will never be haploid
  - d. will never have plurilocular sporangia
  - e. will never have unilocular sporangia
12. An organism has aseptate haploid filaments. If it is photosynthetic, its cell walls probably contain
  - a. cellulose
  - b. chitin
  - c. nothing—it has no cell walls
  - d. peptidoglycan
  - e. alginic acid

13. An organism has silica in its cell walls and brown plastids. It is most likely a member of the division
- Chrysophyta
  - Euglenophyta
  - Oomycota
  - Phaeophyta
  - Rhodophyta
14. Botanists learn the ploidy level of structures 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
15. Cell walls of the \_\_\_\_\_ contain neither cellulose nor chitin
- Acrasiomycota
  - Ascomycota
  - Cyanophyta
  - Myxomycota
  - Xanthophyceae
16. Euglenas have \_\_\_\_\_ eyespots; thus, they can't see \_\_\_\_\_.
- blue . . . red
  - green . . . yellow
  - red . . . blue
  - red . . . red
  - transparent . . . anything
  - f.
17. Food is transported in the phloem of kelps (Phaeophyta) in the form of
- glycogen
  - laminarin
  - mannitol
  - starch
  - sucrose
18. Fucoxanthin is not found in the chloroplasts of division
- Chlorophyta
  - Chrysophyta, class Bacillariophyceae
  - Chrysophyta, class Chrysophyceae
  - Phaeophyta
  - Pyrrhophyta
19. Gametes are the only haploid cells in the
- Ascomycota
  - Chytridiomycota
  - Oomycota
  - Phaeophyta
  - Rhodophyta
20. Heterocysts are specialized for \_\_\_\_\_ and are found in the \_\_\_\_\_.
- asexual reproduction . . . Chytridiomycota
  - dispersal . . . Myxomycota
  - nitrogen fixation . . . Cyanobacteria
  - nutrient transport . . . Phaeophyta
  - survival . . . Cyanobacteria
21. If you were looking for a member of the kingdom Fungi that reproduces primarily asexually (rather than sexually), you would most likely find it in the division
- Acrasiomycota
  - Basidiomycota
  - Euglenophyta
  - Oomycota
  - Zygomycota
22. In rockweeds such as *Fucus*, the receptacles (swollen branch tips) often contain chambers called
- antheridia
  - intercalaries
  - oogonia
  - paraphyses
  - conceptacles
23. In some of the organisms you have studied so far, the gametangia, meiosporangia, and asexual sporangia are similar in appearance. This is most likely because
- the same structure can provide all three functions.
  - the sexual cycle is not known.
  - they are all unicellular.
  - they are formed through the same developmental pathways as a result of the same genetic program.
  - they form on the same sporophyte.
24. In the division Euglenophyta, food is stored in the \_\_\_\_\_ in the form of a carbohydrate called \_\_\_\_\_.
- chloroplast . . . chrysolaminarin
  - chloroplast . . . starch
  - cytoplasm . . . lipid
  - cytoplasm . . . paramylon
  - pellicle . . . glycogen
25. In the Rhodophyta, carposporophytes
- come from tetraspores
  - come from zygotes
  - produce carpospores by meiosis
  - produce gametes by mitosis
  - produce tetraspores by meiosis
26. Most of the fungi that take part in the lichen symbiosis are members of the division \_\_\_\_\_, and most of the algae are in the division \_\_\_\_\_.
- Ascomycota . . . Chlorophyta
  - Ascomycota . . . Cyanophyta
  - Basidiomycota . . . Chlorophyta
  - Basidiomycota . . . Cyanophyta
  - Rhodophyta . . . Sorediomycota
27. Of the five kingdoms of Margulis, the \_\_\_\_\_ are eukaryotic, entirely multicellular, and ingestive.
- Animalia
  - Fungi
  - Monera
  - Plantae
  - Protista

28. One piece of evidence that the lichen association is parasitic is that
- a lichen-forming fungus can attack different species of algae.
  - air pollution kills the fungi, but the algae survive.
  - lichens can be grouped as crustose, foliose, squamulose, and fruticose.
  - lichens can live anywhere.
  - the fungi can live on their own, but the algae can't.
29. Oogamous gametes
- are always flagellated
  - are diploid
  - are egg and sperm
  - are produced only by algae
  - are the same size
30. Organisms of the division Chlorophyta
- always have multicellular gametophytes
  - have cellulose cell walls
  - have chlorophyll a and  $\beta$ -carotene
  - have peptidoglycan cell walls
  - store food as laminarin
31. *Penicillium* produces substances that kill bacteria so that
- humans will have a ready source of antibiotic 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 asexually.
32. *Phytophthora infestans* causes \_\_\_\_\_ as a consequence of increased \_\_\_\_\_.
- aflatoxin . . . salinity
  - eutrophication . . . nitrogen fixation
  - late blight of potato . . . asexual reproduction
  - moldy oranges . . . sexual reproduction
  - the red tide . . . sexual reproduction
33. Rhodophyta grow deeper in the ocean than any other type of algae. This is because
- their carotenoid pigments efficiently absorb the blue light that penetrates the furthest into the water
  - their carotenoid pigments efficiently absorb the yellow light that penetrates the furthest into the water
  - their phycobilin pigments efficiently absorb the blue light that penetrates the furthest into the water
  - their phycobilin pigments efficiently absorb the red light that penetrates the furthest into the water
  - they can live heterotrophically by ingesting dinoflagellates
34. Sporophytes
- always produce gametes
  - are characteristically unicellular
  - are diploid
  - are haploid
  - never have sporangia
35. Tetraspores come from \_\_\_\_\_ and give rise to \_\_\_\_\_.
- carposporophytes . . . gametophytes
  - carposporophytes . . . tetrasporophytes
  - gametes . . . carposporophytes
  - tetrasporophytes . . . carposporophytes
  - tetrasporophytes . . . gametophytes
36. The \_\_\_\_\_ are a group of mainly Ascomycota, with a few Basidiomycota, that have traditionally been kept together because their sexual cycles were not known.
- Aplanomycota
  - Deuteronomy
  - Fungi Imperfecti
  - lichens
  - Zygomycota
37. The \_\_\_\_\_ are primarily marine.
- Basidiomycota
  - Euglenophyta
  - Myxomycota
  - Phaeophyta
  - Zygomycota
38. The Acrasiomycota are like the \_\_\_\_\_ because they both ingest bacteria, and they are like the \_\_\_\_\_ because they both have cellulose cell walls.
- Ascomycota . . . Chrysophyta
  - Chytridiomycota . . . Myxomycota
  - Euglenophyta . . . Ascomycota
  - Myxomycota . . . Chlorophyta
  - Oomycota . . . Cyanobacteria
39. The Ascomycota and Basidiomycota have a dikaryotic phase because
- karyogamy is not immediately followed by plasmogamy
  - meiosis is not immediately followed by syngamy
  - neither has a haploid phase
  - plasmogamy is not immediately followed by karyogamy
  - they are both aseptate
40. The asexual spores of the Ascomycota
- are called conidia
  - are called zygospores
  - are diploid
  - are produced in sac-like sporangia at the ends of hyphae
  - have two flagella each
41. The common food storage substance in the division Chlorophyta is
- glycogen
  - lipids
  - paramylon
  - pellicle
  - starch

42. The cyanobacteria
- are also called blue-green algae
  - are eukaryotic
  - are heterotrophic
  - can fix atmospheric oxygen
  - contain only unicellular forms
43. The filaments that form a mycelium are called
- conidiophores
  - dikaryon
  - heterokonts
  - hyphae
  - myconemata
44. The fossil cell walls of Bacillariophyceae form \_\_\_\_\_ which is used as a(n) \_\_\_\_\_ and a filtering agent.
- alginic acid . . . detergent
  - carrageenan . . . food additive
  - diatomaceous earth . . . abrasive
  - limestone . . . building material
  - muramic acid . . . fish poison
45. The theory that chloroplasts and \_\_\_\_\_ of eukaryotic cells were derived from free-living prokaryotes is called the \_\_\_\_\_ theory.
- mitochondria . . . endosymbiosis
  - nuclei . . . endosymbiosis
  - mitochondria . . . ectoparasitic
  - nuclei . . . organellar insertion
  - plasma membranes . . . relativity
46. *Volvox* of the Chlorophyta is
- a hollow, spherical colony
  - a single large coenocytic cell with many flagella
  - a stage leading to the multicellular Animalia
  - a stage leading to the multicellular Plantae
  - the closest relative of the sponges
47. Xanthophyceae differ from Bacillariophyceae because Xanthophyceae
- are aseptate filaments
  - have a diploid-dominant life cycle
  - have brown plastids
  - have silica in their cell walls
  - only live in the ocean
48. You are eating California Creamy Cow Custard nutrition-free partially-frozen artificially brown-flavored milk-like dessert. You would not be surprised to find that it owes its creamy texture to \_\_\_\_\_ obtained from \_\_\_\_\_.
- carrageenan . . . Rhodophyta
  - carrageenan . . . Phaeophyta
  - chitin . . . Rhodophyta
  - mannitol . . . Phaeophyta
  - laminarin . . . Rhodophyta
49. You are taking a lab exam. The card says “What is the ploidy level of this meiocyte of *Venegasia* of the Magnoliopsida?” You were certain that Magnoliopsida 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
50. You have discovered a fungus growing in the soil. It has no asexual reproductive structures, and all of its cells are dikaryotic. It is most likely a member of the division
- Acrasiomycota
  - Ascomycota
  - Basidiomycota
  - Oomycota
  - Zygomycota