BOT 125 - Plant Morphology
Winter 1999, 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 "cheat sheet" (**tests without names will not be graded**).
3. Write your ***lab*** section on the Scantron sheet in the box marked "Hour" (sect. 1 = TTh 1-4, sect. 2 = MW 12-3). **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 "cheat sheet" on the front table. ***Please keep this sheet.***

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1. _____ are **always** haploid.
   a. Gametophytes
   b. Meiocytes
   c. Meiosporangia
   d. Sporophytes
   e. Zygotes

2. _____ is a Class and _____ is a Phylum.
   a. Alismataceae . . . Ginkgophyta
   b. Brassicaceae . . . Magnoliales
   c. Chrysophyceae . . . Heterobasidiomycetes
   d. Magnoliopsida . . . Zygomycota
   e. *Penicillium* . . . *Phytophthora*

3. _____ is important in the preparation of beer and bread.
   a. *Agaricus brunnescens*
   b. *Aspergillus flavus*
   c. *Penicillium notatum*
   d. *Phytophthora infestans*
   e. *Saccharomyces cerevisiae*

4. _____ ordinarily have two flagella located in grooves on the cell wall
   a. Dictyosteliomycota
   b. Dinophyta
   c. Euglenophyta
   d. Rhodophyta
   e. Zygomycota

5. "Brown" chloroplasts
   a. are similar to free-living cyanobacteria
   b. contain phycobilins
   c. have chlorophylls a, b, c, and d
   d. lack chlorophyll
   e. ordinarily have fucoxanthin as an accessory pigment

6. A basidium ordinarily gives rise to
   a. 4 basidiospores
   b. 64 aplanospores
   c. 8 meiospores
   d. hundreds of clonal spores
   e. non-flagellated sperm cells

7. Although they have chloroplasts, some members of the _____ can live as heterotrophs by eating other organisms.
   a. Basidiomycota
   b. Chytridiomycota
   c. Dinophyta
   d. Oomycota
   e. Phaeophyta

8. An ascus is an example of a(n)
   a. clonal sporangium
   b. gamete
   c. meiosporangium
   d. oospore
   e. zygospore

9. An oospore, a zygospore, and an auxospore walk into a bar. The bartender says, "You'll have to leave. We don't serve _____ here."
   a. clonal spores
   b. gametes
   c. meiospores
   d. zoospores
   e. zygotes

10. An *Ectocarpus* (Phaeophyta: isomorphic group) **sporophyte**
    a. may have unilocular sporangia
    b. will *always* have unilocular sporangia
    c. will never be diploid
    d. will *never* have plurilocular sporangia
    e. will *never* have unilocular sporangia

11. An organism has aseptate haploid filaments. If it forms zygospores and is not photosynthetic, its cell walls are probably made of
    a. cellulose
    b. chitin
    c. nothing—it has no cell walls
    d. peptidoglycan
    e. silica

12. An organism has silica in its cell walls and brown plastids. It is most likely a member of the division
    a. Bacillariophyta
    b. Euglenophyta
    c. Oomycota
    d. Phaeophyta
    e. Rhodophyta

13. An organism produces clonal spores and meiospores. The clonal spores are _____ and the meiospores are _____.
    a. diploid . . . diploid
    b. diploid . . . haploid
    c. haploid . . . diploid
    d. haploid . . . haploid
    e. their ploidy levels cannot be determined with the information given

14. Ascogenous hyphae come from the _____ and form the _____.
    a. ascogonium . . . ascocarp
    b. ascogonium . . . zygospore
    c. ascospores . . . ascocarp
    d. ascospores . . . oospores
    e. ascus . . . zygote

15. Because _____, the Basidiomycota have a dikaryotic phase.
    a. karyokinesis is not immediately followed by cytokinesis
    b. plasmogamy is not immediately followed by karyogamy
    c. syngamy is not immediately followed by meiosis
    d. they have a diploid dominant life cycle
    e. they have no sexual reproduction

16. Botanists learn the ploidy level of cells, organs, and organisms by
    a. counting their chromosomes
    b. looking them up in a book
    c. looking to see if they are drawn in red or green
    d. sequencing their DNA
    e. understanding their place in the sexual life cycle

17. Carpospores come from _____ and give rise to _____.
    a. carposporophytes . . . gametophytes
    b. carposporophytes . . . tetrasporophytes
    c. gametes . . . carposporophytes
    d. tetrasporophytes . . . carposporophytes
    e. tetrasporophytes . . . gametophytes

18. Euglenas have _____ eyespots; thus, they can't see _____.
    a. blue . . . red
    b. green . . . yellow
    c. red . . . blue
    d. red . . . red
    e. transparent . . . anything

19. Flagellated cells are never found in the
    a. Chytridiomycota
    b. Euglenophyta
    c. Phaeophyta
    d. Dinophyta
    e. Rhodophyta

20. Food is stored in Rhodophyta in the form of
    a. floridean starch
    b. glycogen
    c. laminarin
    d. mannitol
    e. paramylon

21. Food is transported in the phloem of kelps (Phaeophyta) in the form of
    a. glycogen
    b. laminarin
    c. mannitol
    d. starch
    e. sucrose

22. Gametes are the only haploid cells in the
    a. Ascomycota
    b. Bacillariophyta
    c. Basidiomycota
    d. Chytridiomycota
    e. Zygomycota

23. Gametophytes produce
    a. gametes by meiosis
    b. gametes by mitosis
    c. meiocytes by syngamy
    d. meiospores by meiosis
    e. meiospores by mitosis

24. If you were to find a fungus growing in the soil, it had no clonal spores, and all of the cells of its septate filaments were dikaryotic, it would most likely be a member of the division
    a. Ascomycota
    b. Basidiomycota
    c. Myxomycota
    d. Oomycota
    e. Zygomycota

25. In marine coastal waters of the tropics, the ecologically dominant seaweeds are members of the division
    a. Euglenophyta
    b. Myxomycota
    c. Phaeophyta
    d. Rhodophyta
    e. Zygomycota

26. In rockweeds (Phaeophyta) such as *Fucus*, the receptacles (swollen branch tips) often contain chambers called
    a. antheridia
    b. intercalaries
    c. oogonia
    d. paraphyses
    e. conceptacles

27. In some of the organisms you have studied so far, the gametangia, meiosporangia, and clonal sporangia are similar in appearance. This is most likely because
    a. the same structure can provide all three functions.
    b. the sexual cycle is not known.
    c. they are all unicellular.
    d. they are formed through the same developmental pathways as a result of the same genetic program.
    e. they form on the same sporophyte.

28. In the Myxomycota, the plasmodium is
    a. a cluster of haploid cells
    b. a single large cell with many diploid nuclei
    c. a single large cell with many haploid nuclei
    d. a clonal sporangium
    e. made of plectenchyma

29. *Penicillium* produces antibiotics in order to
    a. help humans fight infections.
    b. contaminate petri dishes by destroying the organisms that already live there.
    c. grow more easily on oranges, which are prokaryotic like bacteria.
    d. kill bacteria that would otherwise compete for its food.
    e. reproduce asexually.

30. Perithecia, apothecia, and cleistothecia are all found in the
    a. Ascomycota
    b. Basidiomycota
    c. Myxomycota
    d. Oomycota
    e. Zygomycota

31. *Phytophthora infestans* causes _____ as a consequence of increased _____.
    a. aflatoxin . . . salinity
    b. eutrophication . . . nitrogen fixation
    c. late blight of potato . . . clonal reproduction
    d. moldy oranges . . . sexual reproduction
    e. the red tide . . . sexual reproduction

32. Plectenchyma consists of
    a. diploid mycelium
    b. flat sheets of cells, one cell thick
    c. masses of clonal sporangia
    d. three-dimensional tissue made of compacted filaments
    e. three-dimensional tissue that results from cells dividing in three dimensions

33. Rhodophyta grow deeper in the ocean than any other type of algae. This is because
    a. their yellow carotenoid pigments efficiently absorb the blue light that penetrates the furthest into the water
    b. their yellow carotenoid pigments efficiently absorb the yellow light that penetrates the furthest into the water
    c. their red phycobilin pigments efficiently absorb the blue light that penetrates the furthest into the water
    d. their red phycobilin pigments efficiently absorb the red light that penetrates the furthest into the water
    e. they can live heterotrophically by ingesting dinoflagellates

34. The _____ are a group of mainly Ascomycota, with a few Basidiomycota, that have traditionally been kept together because their sexual cycles were not known.
    a. Aplanomycota
    b. Deuterium oxide
    c. Fungi Imperfecti
    d. Oomycota
    e. Zygomycota

35. The _____ are primarily marine.
    a. Basidiomycota
    b. Euglenophyta
    c. Myxomycota
    d. Phaeophyta
    e. Zygomycota

36. The “slug” of the Dictyosteliomycota
    a. can eat organisms as large as a small puppy
    b. is a single multinucleate cell
    c. is an aggregation of many separate cells
    d. is involved in sexual reproduction
    e. turns into a meiosporangium

37. The Dictyosteliomycota are like the _____ because they both ingest bacteria, and they are like the _____ because they both have cellulose cell walls.
    a. Ascomycota . . . Zygomycota
    b. Chytridiomycota . . . Myxomycota
    c. Oomycota . . . Ascomycota
    d. Myxomycota . . . Oomycota
    e. Oomycota . . . Zygomycota

38. The clonal spores of the Ascomycota
    a. are called conidia
    b. are called zygospores
    c. are diploid
    d. are produced in sac-like sporangia at the ends of hyphae
    e. have two flagella each

39. Biologists estimate the amount of evolutionary kinship between any two organisms by looking at
    a. how primitive or advanced they are
    b. the homologies they share
    c. their fossils
    d. their place in the classification in the book
    e. their place on a cladogram

40. The filaments that form a mycelium are called
    a. coenocytes
    b. dikaryons
    c. heterokonts
    d. hyphae
    e. myconemata

41. Diatomaceous earth, formed of the fossil cell walls of _____, is used as a(n) _____ and a filtering agent.
    a. Rhodophyta . . . detergent
    b. Bacillariophyta . . . food additive
    c. Bacillariophyta . . . abrasive
    d. Rhodophyta . . . building material
    e. Dinophyta . . . fish poison

42. The Linnaean hierarchy, in order from the smallest, least inclusive level to the largest, most inclusive level, is
    a. Kingdom, Division, Class, Order, Family, Genus, Species
    b. Kingdom, Division, Family, Order, Class, Genus, Species
    c. Specie, Genius, Famished, Odor, Clasp, Phylum, Kingdome
    d. Species, Genus, Class, Order, Family, Division, Kingdom
    e. Species, Genus, Family, Order, Class, Division, Kingdom

43. The plasmodium of Myxomycota feeds by
    a. breaking down and absorbing decaying vegetation
    b. dumpster-diving
    c. ingesting bacteria
    d. parasitizing animals
    e. photosynthesis

44. The primary means of reproduction in Dictyosteliomycota is by
    a. formation of clonal spores
    b. formation of gametes
    c. formation of meiospores
    d. mitosis of the myxamoebae
    e. splitting of the "slug"

45. We can distinguish homology from homoplasy because
    a. all homologies tell parts of the same story
    b. all homologies look alike
    c. all homoplasies tell parts of the same story
    d. all homoplasies look alike
    e. homoplasy exists independent of human perception

46. We know that the eukaryotes are monophyletic because they all have
    a. a cell wall
    b. alternation of generations
    c. chloroplasts
    d. nuclei
    e. the same genetic code

47. When you are eating *Agaricus brunnescens*, the common pizza mushroom, you are eating
    a. a basidiocarp
    b. diploid mycelium
    c. haploid mycelium
    d. parenchyma
    e. zygospores

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 _____.
    a. carrageenan . . . Rhodophyta
    b. carrageenan . . . Phaeophyta
    c. chitin . . . Rhodophyta
    d. mannitol . . . Phaeophyta
    e. laminarin . . . Rhodophyta

49. You are taking a lab exam. The card says "What is the ploidy level of these meiospores of *Grimmia* of the Bryophyta?" You were certain that Bryophyta 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
    a. dikaryotic
    b. diploid
    c. gamete
    d. haploid
    e. zygote

50. Zoospores
    a. always lack flagella
    b. always have flagella
    c. are always diploid
    d. are always haploid
    e. are always clonal