BOT 125 - Plant Morphology
Winter 1996, 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 (sect. 1 = TTh 1-4, sect. 2 = 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, 1–9.
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. _____ is the cause of late blight of potato.
   a. *Agaricus brunnescens*
   b. *Aspergillus flavus*
   c. *Penicillium notatum*
   d. *Phytophthora infestans*
   e. *Saccharomyces cerevisiae*

2. _____ are **always** diploid.
   a. Gametangia
   b. Gametes
   c. Meiospores
   d. Spermatocytes
   e. Zoospores

3. _____ is a Family and _____ is an Order.
   a. Alismataceae . . . Zygnematales
   b. Brassicaceae . . . Ginkgophyta
   c. Chrysophyceae . . . Heterobasidiomycetes
   d. Magnoliopsida . . . Magnoliales
   e. *Penicillium* . . . *Phytophthora*

4. _____ ordinarily have one long, active flagellum for swimming
   a. Acrasiomycota
   b. Cyanobacteria
   c. Euglenophyta
   d. Pyrrhophyta
   e. Zygomycota

5. "Alternation of generations" refers to alternation of
   a. a dikaryotic mycelium with a diploid mycelium
   b. a diploid, meiospore-producing generation with a haploid, gamete-producing generation
   c. a haploid, meiospore-producing generation with a diploid, gamete-producing generation
   d. asexual and sexual reproduction
   e. Jean-Luc Picard and James T. Kirk

6. A basidium characteristically produces
   a. 32 ascospores
   b. 4 basidiospores
   c. 8 meiospores
   d. flagellated sperm cells
   e. hundreds of asexual spores

7. A common food storage substance in the division Euglenophyta is
   a. glycogen
   b. lipids
   c. paramylon
   d. pellicle
   e. starch

8. A perithecium
   a. has asci on the inside
   b. has basidia on the inside
   c. is an open, cup-shaped structure
   d. is formed of diploid cells
   e. is found in the Zygomycota

9. Akinetes are found in the _____ and are specialized for _____.
   a. Chytridiomycota . . . asexual reproduction
   b. Cyanobacteria . . . survival
   c. Myxomycota . . . dispersal
   d. Phaeophyta . . . nitrogen fixation
   e. Phaeophyta . . . nutrient transport

10. **All** eukaryotes have
    a. basal bodies
    b. cell walls
    c. chloroplasts
    d. chromosomes
    e. mitochondria

11. Although most Fungi Imperfecti belong in the _____, and many of the rest in the _____, mycologists retain the group because of its historical importance.
    a. Ascomycota . . . Basidiomycota
    b. Ascomycota . . . Oomycota
    c. Basidiomycota . . . Zygomycota
    d. Zygomycota . . . Ascomycota
    e. Pyrrhophyta . . . Acrasiomycota

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

13. Among the divisions with brown plastids, the _____ have members with the most complex multicellular sporophytes.
    a. Chrysophyta
    b. Oomycota
    c. Phaeophyta
    d. Pyrrhophyta
    e. Rhodophyta

14. An auxospore, an oospore, and a zygospore are all examples of
    a. asexual spores
    b. gametes
    c. meiospores
    d. zoospores
    e. zygotes

15. 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

16. An organism has aseptate diploid filaments. If it forms oospores 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

17. An organism has silica cell walls and brown plastids. It is most likely a member of the division
    a. Chrysophyta
    b. Euglenophyta
    c. Myxomycota
    d. Oomycota
    e. Rhodophyta

18. arl Linnaeus
    a. developed the Linnaean hierarchy of Kingdom, Phylum, Division, Order, Genus, and Species.
    b. felt that variation *within* species was "accidental", not as important as the "essential" variation *between* species.
    c. gave organisms Latin names because few scientists in Europe knew Latin and he wanted to keep their characteristics secret.
    d. grouped organisms according to evolutionary kinship.
    e. invented binomial names because he thought they were better than long phrases.

19. Cell walls of the _____ contain neither cellulose nor chitin
    a. Acrasiomycota
    b. Ascomycota
    c. Cyanophyta
    d. Xanthophyceae
    e. Zygomycota

20. Diatomaceous earth is composed mainly of the _____ of _____.
    a. cell walls . . . Chrysophyta
    b. cell walls . . . Pyrrhophyta
    c. cell walls . . . Xanthophyceae
    d. crushed remains . . . swimming pools
    e. flagella . . . diatoms

21. Dinoflagellates are the causative organisms of
    a. aflatoxin
    b. eutrophication
    c. late blight of potato
    d. the antibiotic penicillin
    e. the red tide

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

23. Flagellated cells are never found in the
    a. Basidiomycota
    b. Chytridiomycota
    c. Euglenophyta
    d. Oomycota
    e. Pyrrhophyta

24. Food is stored in kelps (Phaeophyta) in the form of
    a. glycogen
    b. laminarin
    c. mannitol
    d. paramylon
    e. starch

25. Fucoxanthin is not found in the chloroplasts of division
    a. Chrysophyta, class Bacillariophyceae
    b. Chrysophyta, class Chrysophyceae
    c. Phaeophyta
    d. Pyrrhophyta
    e. Rhodophyta

26. Gametes are the only haploid cells in the
    a. Ascomycota
    b. Bacillariophyceae
    c. Phaeophyta
    d. Rhodophyta
    e. Xanthophyceae

27. If you were looking for a member of the kingdom Fungi with little or no *asexual* reproduction, you would most likely find it in the division
    a. Acrasiomycota
    b. Ascomycota
    c. Basidiomycota
    d. Oomycota
    e. Zygomycota

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

29. In marine coastal waters of the north Pacific, the ecologically dominant seaweeds are members of the division
    a. Cyanophyta
    b. Euglenophyta
    c. Myxomycota
    d. Oomycota
    e. Phaeophyta

30. In rockweeds such as *Fucus*, the conceptacles are often contained in swollen branch tips called
    a. antheridia
    b. intercalaries
    c. oogonia
    d. paraphyses
    e. receptacles

31. 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
    a. the same structure can provide all three functions
    b. the sexual cycle is not known
    c. they are all diploid
    d. they are formed through the same developmental pathways
    e. they form on the same gametophyte

32. In the Rhodophyta, tetrasporophytes
    a. come from tetraspores
    b. come from zygotes
    c. produce carpospores by meiosis
    d. produce gametes by mitosis
    e. produce tetraspores by meiosis

33. Isogamous gametes
    a. are diploid
    b. are egg and sperm
    c. are never flagellated
    d. are produced only by fungi
    e. are the same size

34. Most of the fungi that take part in the lichen symbiosis are members of the division
    a. Acrasiomycota
    b. Ascomycota
    c. Basidiomycota
    d. Sorediomycota
    e. Zygomycota

35. Of the five kingdoms of Margulis, the _____ are prokaryotic and primarily unicellular.
    a. Animalia
    b. Fungi
    c. Monera
    d. Plantae
    e. Protista

36. One piece of evidence that the lichen association is parasitic is that
    a. a lichen-forming fungus can attack different species of algae
    b. air pollution kills the fungi, but the algae survive
    c. lichens can be grouped as crustose, foliose, squamulose, and fruticose
    d. lichens can live anywhere
    e. the fungi can live on their own, but the algae can't

37. Perithecia, cleistothecia, and apothecia are all types of
    a. ascocarps
    b. basidiocarps
    c. gametangia
    d. plasmodia
    e. zygocarps

38. Reproductive cells of the Zygomycota have _____ flagella.
    a. 0
    b. 1
    c. 2
    d. 3-5
    e. 6-25

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

40. The _____ are primarily terrestrial.
    a. Chrysophyta
    b. Euglenophyta
    c. Oomycota
    d. Pyrrhophyta
    e. Zygomycota

41. The Ascomycota and Basidiomycota have a dikaryotic phase because
    a. karyogamy is not immediately followed by plasmogamy
    b. meiosis is not immediately followed by syngamy
    c. neither has a haploid phase
    d. plasmogamy is not immediately followed by karyogamy
    e. they are both aseptate

42. The asexual spores of the Ascomycota
    a. are called conidia
    b. are called zygospores
    c. are formed by meiosis
    d. are produced in sac-like sporangia at the ends of hyphae
    e. come from zoosporangia

43. The budding of yeast is equivalent to
    a. formation of ascospores
    b. formation of conidia
    c. formation of zygospores
    d. fusion of non-flagellated gametes
    e. plasmogamy

44. The Chytridiomycota were once placed in the kingdom Fungi. They are similar to fungi because
    a. they are both totally aquatic
    b. they both consist of diploid mycelium
    c. they both have an extensive dikaryotic phase
    d. they both have cellulose cell walls
    e. they both have saprophytic and parasitic forms

45. The cyanobacteria
    a. are also called yellow-green algae
    b. are autotrophic
    c. are heterotrophic
    d. can fix atmospheric lithium
    e. contain only unicellular forms

46. The filaments that form a mycelium are called
    a. conidiophores
    b. dikaryon
    c. heterokonts
    d. hyphae
    e. myconemata

47. The Myxomycota are like the _____ because they both ingest bacteria, and they are like the _____ because they both have no cell walls.
    a. Acrasiomycota . . . Euglenophyta
    b. Ascomycota . . . Chrysophyta
    c. Chytridiomycota . . . Myxomycota
    d. Oomycota . . . Cyanobacteria
    e. Zygomycota . . . Ascomycota

48. The two-part sporophyte (tetrasporophyte and carposporophyte) of the Rhodophyta and the dikaryotic mycelium of the Basidiomycota both serve to
    a. increase the number of meiospores per zygote
    b. increase the amount of asexual reproduction relative to sexual reproduction
    c. eliminate the need for syngamy
    d. eliminate the need for meiosis
    e. produce greater numbers of zoospores.

49. You are eating Creamy California Custard nutrition-free frozen artificially brown-flavored milk-like dessert. You would not be surprised to find that it owes its creamy texture to
    a. brown plastids
    b. carrageenan
    c. chitin
    d. silica
    e. the red tide

50. You are taking a lab exam. The card says "What is the ploidy level of these meiospores of *Dennstaedtia* of the Pterophyta?" You were certain that Pterophyta 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