

**BOT 125 - Plant Morphology**  
**Spring 1992**  
**Second Midterm Exam**

Answer all questions on the Scantron sheet. *Please keep this sheet*, and turn in the Scantron only. There is only one correct answer to each question.

1. \_\_\_\_\_ are **always** haploid.
  - a. Gametangia
  - b. Gametophytes
  - c. Meiosporangia
  - d. Sporophytes
  - e. Zoospores
  
2. \_\_\_\_\_ are **always** diploid.
  - a. Gametes
  - b. Gametophytes
  - c. Megaspores
  - d. Zoospores
  - e. Zygotes
  
3. \_\_\_\_\_ are **always** flagellated.
  - a. Egg cells
  - b. Protista
  - c. Sperm cells
  - d. Zoospores
  - e. Zygotes
  
4. A similarity between the Rhodophyta and Pyrrhophyta is that virtually all members of both groups
  - a. are multicellular
  - b. have chitin cell walls
  - c. have green plastids
  - d. have tinsel flagella
  - e. have two flagella
  
5. Alginic acids come from \_\_\_\_\_ and are used in the manufacture of \_\_\_\_\_.
  - a. Bryophyta . . . paints
  - b. Phaeophyta . . . food products
  - c. Phaeophyta . . . steel
  - d. Rhodophyta . . . food products
  - e. Rhodophyta . . . steel

6. Diatomaceous earth is composed mainly of the \_\_\_\_\_ of \_\_\_\_\_.
  - a. cell walls . . . diatoms
  - b. cell walls . . . dinoflagellates
  - c. crushed remains . . . swimming pools
  - d. flagella . . . diatoms
  - e. flagella . . . dinoflagellates
7. Gametes are the only haploid cells in the
  - a. Bacillariophyceae
  - b. Bryophyta
  - c. Chlorophyta
  - d. Phaeophyta
  - e. Xanthophyceae
8. In the Bacillariophyceae, an **auxospore** is equivalent to a
  - a. asexual spore
  - b. flagellated zoospore
  - c. gamete
  - d. meiospore
  - e. zygote
9. In the Muscopsida, the calyptra
  - a. consists of diploid cells
  - b. contains conductive cells
  - c. is an important adaptation for spore dispersal
  - d. is the remains of the archegonium
  - e. remains attached to the capsule even after the spores are released
10. In the Rhodophyta, gametophytes
  - a. are always unicellular
  - b. are haploid
  - c. come from zygotes
  - d. have phloem
  - e. produce meiospores
11. 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
12. In *Fucus* and other rockweeds, meiospores
  - a. are diploid
  - b. are produced in archegonia
  - c. develop into large multicellular gametophytes
  - d. develop into large multicellular sporophytes
  - e. divide once to become gametes

13. Leafy liverworts
  - a. are most common in temperate regions, less common in the tropics
  - b. have gametophytes with meiosporangia
  - c. have midribs on their leaves
  - d. have true stomata
  - e. produce sporophytes with short setae and elaters
14. Members of the division \_\_\_\_\_ lack a cell wall.
  - a. Chlorophyta
  - b. Chrysophyta
  - c. Euglenophyta
  - d. Phaeophyta
  - e. Pyrrhophyta
15. Ordinarily only a single flagellum is present in the motile cells of the
  - a. Chlorophyta
  - b. Euglenophyta
  - c. Phaeophyta
  - d. Pyrrhophyta
  - e. Rhodophyta
16. Organisms of the division Rhodophyta
  - a. are never multicellular gametophytes
  - b. have chlorophyll b and  $\beta$ -carotene
  - c. have non-flagellated sperm cells
  - d. have one or two tinsel flagella on their zoospores
  - e. store food as mannitol
17. Paramylon is a food storage substance in the division
  - a. Chlorophyta
  - b. Chrysophyta
  - c. Euglenophyta
  - d. Phaeophyta
  - e. Pyrrhophyta
18. Parenchyma tissue can be found in the gametophytes of the
  - a. Bryophyta
  - b. Chrysophyta
  - c. Phaeophyta
  - d. Pyrrhophyta
  - e. Rhodophyta
19. Parenchyma tissue can be found in the sporophytes of the
  - a. Basidiomycota
  - b. Chrysophyta
  - c. Euglenophyta
  - d. Phaeophyta
  - e. Pyrrhophyta

20. Phycobilin pigments are found in the division
- Chlorophyta
  - Chrysophyta
  - Phaeophyta
  - Pyrrhophyta
  - Rhodophyta
21. Phycoplast cell division
- includes microtubules oriented at right angles to the mitotic spindle
  - is always found in organisms with a multi-layered structure
  - is found only in the Charophyceae
  - is the ancestral ("primitive") form of cell division
  - only happens in meiosis
22. The "red tide" is caused by members of the division
- Chlorophyta
  - Chrysophyta
  - Euglenophyta
  - Pyrrhophyta
  - Rhodophyta
23. The Anthocerotopsida
- are called "mosses"
  - have conductive cells in their gametophytes
  - have mucilage-filled intercellular spaces in their gametophytes
  - have single-celled sporophytes
  - live in the intertidal zone
24. The Bacillariophyceae and Xanthophyceae are both placed in the Chrysophyta because
- they both consist of unicellular organisms only
  - they both have brown plastids
  - they both have dominant diploid generations
  - they both have silica cell walls
  - they both produce antheridia and oogonia on the same filaments
25. The division Rhodophyta
- contains more unicellular than multicellular species
  - contains organisms that play an important ecological role along both tropical and temperate coastlines
  - contains fewer than 200 species
  - is the closest relative to the kingdom Plantae
  - is the source of all edible seaweed and seaweed products

26. The pores of the gametophytes of the Hepaticopsida
- allow air exchange to the tissues below
  - are homologous with the stomata of vascular plants
  - are only found on the gametangia
  - are only found on the sporangia
  - produce asexual reproductive structures called *gemmae*.
27. The sterile jacket of the oogonium of *Chara* is most likely an adaptation
- to allow colonization of the land
  - to prevent fertilization
  - to produce vascular tissue
  - to protect the zygote
  - to provide nutrients to the developing sporophyte
28. The structure at the opening of a moss capsule that consists of teeth that flex with changes in humidity is called a
- calyptra
  - elater
  - operculum
  - peristome
  - seta
29. Water-conducting cells in mosses are called
- hydroids
  - leptoids
  - sieve cells
  - stomata
  - tracheids
30. We know that the Charophyceae and the embryophytes are close relatives because they both have
- cruciate basal bodies
  - fucoxanthin
  - multicellular, free-living sporophytes
  - phragmoplast division
  - stomata
31. Which one of these does not have chlorophyll c?
- Bacillariophyceae
  - Oomycota
  - Phaeophyta
  - Pyrrhophyta
  - Xanthophyceae

32. You are taking a lab exam. The dish contains *Chara* of the Charophyceae, and the question asks "What is the ploidy level of the sessile gamete at the pointer?" The pointer is missing. What should you answer?
- a. diploid
  - b. egg cell
  - c. haploid
  - d. meiospore
  - e. no answer--its ploidy level cannot be determined without the pointer.
33. You are taking a lab exam. The question is "What is the name of this diploid cell in *Vaucheria*?" Although you remember that *Vaucheria* is in the Xanthophyceae, the illuminator on the scope is burned out. Quick! The most likely answer is
- a. ascospore
  - b. gametangium
  - c. meiospore
  - d. zoospore
  - e. zygote