

BOT 125 - Plant Morphology
Winter 1992
Second Midterm Exam

Answer all questions on the Scantron sheet. Please **keep** this sheet. Turn in the Scantron only, and indicate your **lab** section on it. There is only one correct answer to each question.

1. ____ are always diploid.
 - a. Gametes
 - b. Gametophytes
 - c. Microspores
 - d. Zoospores
 - e. Zygotes

2. ____ are always flagellated.
 - a. Egg cells
 - b. Protista
 - c. Sperm cells
 - d. Zoospores
 - e. Zygotes

3. ____ are always haploid.
 - a. Gametangia
 - b. Gametophytes
 - c. Meiosporangia
 - d. Zoospores
 - e. Zygotes

4. A similarity between the Chlorophyta and Pyrrhophyta is that most 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. Agar and carrageenan 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. In diatoms, an **auxospore** is equivalent to a
 - a. asexual spore
 - b. flagellated zoospore
 - c. gamete
 - d. meiospore
 - e. zygote
8. In mosses, 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 antheridium
 - e. usually falls off the capsule before the spores are released
9. In rockweeds, such as *Fucus*, 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
10. In the Phaeophyta, gametophytes
 - a. are always unicellular
 - b. are haploid
 - c. are produced in carpocarps
 - d. come from zygotes
 - e. produce meiospores
11. In the Rhodophyta, tetrasporophytes
 - a. come from carpospores
 - b. come from zygotes
 - c. produce carpospores by meiosis
 - d. produce gametes by mitosis
 - e. produce tetraspores by mitosis
12. Leafy liverworts
 - a. are most common in temperate regions, less common in the tropics
 - b. have midribs on their leaves
 - c. have true stomata
 - d. produce meiosporangia on their gametophytes
 - e. produce sporophytes with short setae and elaters
13. Mannitol is a food storage and transport substance in the division
 - a. Chlorophyta
 - b. Chrysophyta
 - c. Euglenophyta
 - d. Phaeophyta
 - e. Pyrrhophyta

14. Members of the division _____ lack a cell wall.
- Chlorophyta
 - Chrysophyta
 - Euglenophyta
 - Phaeophyta
 - Pyrrhophyta
15. Ordinarily only a single flagellum is present in the motile cells of the
- Chlorophyta
 - Euglenophyta
 - Phaeophyta
 - Pyrrhophyta
 - Rhodophyta
16. Organisms of the division Rhodophyta
- are never multicellular gametophytes
 - have chlorophyll b and β -carotene
 - have motile zoospores
 - have one or two tinsel flagella
 - store food as floridean starch
17. Parenchyma tissue can be found in the gametophytes of the
- Bryophyta
 - Chrysophyta
 - Myxomycota
 - Phaeophyta
 - Pyrrhophyta
18. Parenchyma tissue can be found in the sporophytes of the
- Phaeophyta
 - Pyrrhophyta
 - Myxomycota
 - Basidiomycota
 - Chrysophyta

19. Phycobilin pigments are found in the division
 - a. Chlorophyta
 - b. Chrysophyta
 - c. Phaeophyta
 - d. Pyrrhophyta
 - e. Rhodophyta
20. Phycoplast cell division
 - a. includes microtubules oriented at right angles to the mitotic spindle
 - b. is always found in organisms with a multi-layered structure
 - c. is found only in the Charophyceae
 - d. is the ancestral ("primitive") form of cell division
 - e. only happens in meiosis
21. The "red tide" is caused by members of the division
 - a. Chlorophyta
 - b. Chrysophyta
 - c. Euglenophyta
 - d. Pyrrhophyta
 - e. Rhodophyta
22. The Anthocerotopsida
 - a. are called "liverworts"
 - b. are non-photosynthetic
 - c. have conductive cells in their sporophytes
 - d. have mucilage-filled intercellular spaces in their gametophytes
 - e. have single-celled gametophytes
23. The Bacillariophyceae (diatoms) and Xanthophyceae are both placed in the Chrysophyta because
 - a. they both consist of unicellular organisms only
 - b. they both have brown plastids
 - c. they both have dominant diploid generations
 - d. they both have silica cell walls
 - e. they both produce antheridia and oogonia on the same filaments
24. The bryophyte group with the greatest number of "algal" features is the
 - a. Anthocerotopsida
 - b. Hepaticopsida
 - c. Muscopsida
 - d. Ulvophyceae
 - e. Xanthophyceae

25. The division Phaeophyta
- contains more unicellular than multicellular species
 - contains organisms that play an important ecological role along temperate coastlines
 - contains over 200,000,000 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 more meiospores
 - to protect the zygote
 - to provide nutrients to the developing sporophyte
28. The zygote is the only diploid cell in the
- Bacillariophyceae
 - Bryophyta
 - Chlorophyta
 - Phaeophyta
 - Xanthophyceae
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
- chlorophyll c
 - multicellular, free-living sporophytes
 - pycoplast division
 - stomata
 - the multi-layered structure

31. Which one of these does not have brown plastids?
- 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?
- it is a meiospore
 - it is an egg cell
 - it is diploid
 - it is haploid
 - 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
- ascospore
 - gametangium
 - meiospore
 - zoospore
 - zygote