

BOT 125 - Plant Morphology

Summer 2000, 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 the number of your lab section on the Scantron sheet in the box marked Hour (sect. 1 = mw 12-3 [Melissa], sect. 2 = MW 3-6 [Jon]). 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. _____ has been used to produce wine, beer, and bread for at least 8,000 years.
 - a. *Agaricus brunnescens*
 - b. *Aspergillus flavus*
 - c. *Penicillium notatum*
 - d. *Phytophthora infestans*
 - e. *Saccharomyces cerevisiae*
 2. _____ is an Order and _____ is a Phylum.
 - a. Alismatales . . . Ginkgophyta
 - b. Brassicaceae . . . Magnoliales
 - c. Chrysophyceae . . . Heterobasidiomycetes
 - d. Magnoliopsida . . . Zygomycota
 - e. *Penicillium* . . . Phytophthora
 3. _____ of the _____ are never flagellated.
 - a. Clonal spores . . . Chytridiomycota
 - b. Clonal spores . . . Oomycota
 - c. Clonal spores . . . Zygomycota
 - d. Gametes . . . Chytridiomycota
 - e. Gametes . . . Phaeophyta
 4. _____ ordinarily have two flagella located in grooves on the cell wall
 - a. Dictyosteliomycota
 - b. Dinophyta
 - c. Euglenophyta
 - d. Rhodophyta
 - e. Zygomycota
 5. _____ produce _____ by _____.
 - a. Gametophytes . . . gametes . . . meiosis
 - b. Gametophytes . . . meiospores . . . mitosis
 - c. Sporophytes . . . gametes . . . mitosis
 - d. Sporophytes . . . meiocytes . . . syngamy
 - e. Sporophytes . . . meiospores . . . meiosis
 6. _____ are **always** haploid.
 - a. Gametophytes
 - b. Meiocytes
 - c. Meiosporangia
 - d. Sporophytes
 - e. Zygotes
 7. 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
 8. A paraphyletic group
 - a. consists of a common ancestor and all its descendants
 - b. consists of a common ancestor and some, but not all, of its descendants
 - c. excludes its common ancestor
 - d. is a natural group, that exists independent of human perception
 - e. is the same thing as a clade
 9. A single individual organism produces both clonal spores and meiospores. The clonal spores are _____ and the meiospores are _____. (Think this one through . . .)
 - a. diploid . . . diploid
 - b. diploid . . . haploid
 - c. haploid . . . diploid
 - d. haploid . . . haploid
 - e. their ploidy levels cannot be determined with the information given
 10. An ascoma (ascocarp) is made of
 - a. dikaryotic mycelium
 - b. diploid mycelium
 - c. diploid plasmodium
 - d. haploid mycelium
 - e. haploid plasmodium
 11. An auxospore, an oospore, and a zygospore walk into a bar. The bartender says, "You'll have to leave. We don't serve _____ here."
 - a. clonal spores
 - b. eggs
 - c. meiocytes
 - d. meiospores
 - e. zygotes

12. An organism has septate haploid filaments. If it forms ascospores and is not photosynthetic, its cell walls are probably made of
- cellulose
 - chitin
 - nothing it has no cell walls
 - peptidoglycan
 - silica
13. A unicellular organism has silica in its cell walls and brown plastids. It is most likely a member of the phylum
- Bacillariophyta
 - Euglenophyta
 - Oomycota
 - Phaeophyta
 - Rhodophyta
14. Ascogenous hyphae are _____, come from the _____, and form the _____.
- dikaryotic . . . ascogonium . . . ascoma (ascocarp)
 - dikaryotic . . . ascospores . . . ascoma (ascocarp)
 - diploid . . . ascogonium . . . zygosporangium
 - haploid . . . ascospores . . . oospores
 - haploid . . . ascus . . . zygote
15. Because _____, both the Ascomycota and Basidiomycota have a dikaryotic phase.
- karyogamy does not occur immediately after plasmogamy
 - meiosis does not occur immediately after syngamy
 - neither has a haploid phase
 - plasmogamy does not occur immediately after karyogamy
 - they are both aseptate
16. Because the Oomycota have a(n) _____ sexual cycle, the only _____ cells are _____.
- alternation of generations . . . diploid . . . gametes
 - diploid dominant . . . haploid . . . gametes
 - diploid dominant . . . haploid . . . zygotes
 - haploid dominant . . . diploid . . . zygotes
 - haploid dominant . . . haploid . . . zygotes
17. Biologists estimate the amount of evolutionary kinship between any two organisms by looking at
- how primitive or advanced they are
 - their fossil record
 - their place in the classification in a textbook
 - their place on a cladogram
 - their shared homologies
18. Botanists learn the ploidy level of cells, organs, and organisms 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
19. Carpospores come from _____ and give rise to _____.
- carposporophytes . . . gametophytes
 - carposporophytes . . . tetrasporophytes
 - gametes . . . carposporophytes
 - tetrasporophytes . . . carposporophytes
 - tetrasporophytes . . . gametophytes
20. Diatomaceous earth, formed of the fossil cell walls of _____, is used as a(n) _____ and a filtering agent.
- Rhodophyta . . . detergent
 - Bacillariophyta . . . food additive
 - Bacillariophyta . . . abrasive
 - Rhodophyta . . . building material
 - Dinophyta . . . fish poison
21. Dictyosteliomycota increase their population numbers through
- myxamoebae dividing by mitosis
 - production of clonal spores
 - production of meiospores
 - vegetative growth of the mycelium
 - zoospores dividing by meiosis
22. Egg cells of the Oomycota
- are diploid
 - are produced by meiosis
 - are produced by mitosis
 - are the end products of syngamy
 - are also called oospores
23. Euglenas have _____ eyespots; thus, they can't see _____.
- blue . . . red
 - green . . . yellow
 - red . . . blue
 - red . . . red
 - transparent . . . anything
24. Food is stored in Rhodophyta in the form of
- floridean starch
 - glycogen
 - laminarin
 - mannitol
 - paramylon

25. Food is transported in the phloem of kelps (Phaeophyta) in the form of
- glycogen
 - laminarin
 - mannitol
 - starch
 - sucrose
26. Gametes are the only haploid cells in the
- Ascomycota
 - Bacillariophyta
 - Basidiomycota
 - Chytridiomycota
 - Zygomycota
27. Homoplasmy is
- a fact of nature, not the result of human judgment.
 - false analogy.
 - false homology.
 - the result of common ancestry.
 - the way we recognize evolutionary kinship.
28. If the pizza guy brings a thick-crust mushroom and Italian sausage pizza, the two fungi it most likely contains are
- Bos taurus* and *F. niculum vulgare*
 - Phytophthora infestans* and *Aspergillus niger*
 - Pneumocystis carinii* and *Penicillium notatum*
 - Saccharomyces cerevisiae* and *Agaricus brunnescens*
29. If you were isolating pigments from a green plastid, you would **not** expect to find
- β -carotene
 - chlorophyll a
 - chlorophyll b
 - phycoerythrin
 - xanthophyll pigments
30. In marine coastal waters of temperate regions such as California, the ecologically dominant seaweeds are members of the phylum
- Euglenophyta
 - Myxomycota
 - Phaeophyta
 - Rhodophyta
 - Zygomycota
31. In Myxomycota, the plasmodium develops from the _____, thus, it must be _____.
- egg cell . . . haploid
 - meiocyte . . . haploid
 - meiospore . . . diploid
 - zygote . . . haploid
 - zygote . . . diploid
32. In organisms with alternation of generations, the clonal sporangia, gametangia, and meiosporangia may look similar. This is because they
- are all haploid.
 - are all multicellular.
 - are formed by the same genetic and developmental pathways.
 - are formed on the same sporophytes.
 - have the same function.
33. In rockweeds (Phaeophyta) such as *Fucus*, the _____ (swollen branch tips) often contain chambers called _____.
- conceptacles . . . oogonia
 - conceptacles . . . receptacles
 - oogonia . . . paraphyses
 - receptacles . . . conceptacles
 - receptacles . . . spermatangia
34. Myxomycota live by
- digesting and absorbing decaying vegetation
 - dumpster-diving
 - ingesting bacteria
 - parasitizing fungi
 - photosynthesis
35. *Penicillium* produces substances that kill bacteria so that
- humans will kill it and extract antibiotics 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 clonally.
36. Perithecia, apothecia, and cleistothecia are all examples of
- ascmata
 - basidiomata
 - gametangia
 - parenchyma
 - zygomata
37. *Phytophthora infestans* causes _____ as a consequence of increased _____.
- aflatoxin . . . salinity
 - eutrophication . . . nitrogen fixation
 - late blight of potato . . . clonal reproduction
 - moldy oranges . . . sexual reproduction
 - the red tide . . . sexual reproduction

38. Plectenchyma consists of
- diploid mycelium
 - flat sheets of cells, one cell thick
 - masses of clonal sporangia
 - three-dimensional tissue made of compacted filaments
 - three-dimensional tissue that results from cells dividing in three dimensions
39. Sexual reproduction *always* includes
- eggs and sperm
 - meiosis and syngamy
 - mitosis and ontogeny
 - ontogeny and phylogeny
 - wine and candles
40. 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
 - Deuterium oxide
 - Fungi Imperfecti
 - Oomycota
 - Zygomycota
41. The slug of the Dictyosteliomycota
- can eat organisms as large as a small kitten
 - is a single large multinucleate cell
 - is an aggregation of many separate cells
 - is involved in sexual reproduction
 - turns into a meiosporangium
42. The clonal 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
43. The filaments that form a mycelium are called
- coenocytes
 - dikaryons
 - heterokonts
 - hyphae
 - myconemata
44. The gametophyte of a brown alga with isomorphic alternation of generations is parenchymatous. The sporophyte will always be
- diploid-dominant
 - filamentous
 - haploid
 - larger
 - parenchymatous
45. The layer of meiosporangia in the Ascomycota and Basidiomycota is called the
- antheridium
 - conidium
 - hymenium
 - plasmodium
 - zoosporangium
46. The structure in the Basidiomycota that ensures that each new cell gets a nucleus from each parent is called a(n)
- ascogonium
 - basidioma (basidiocarp)
 - clamp connection
 - collateral bundle
 - mycelium
47. We can distinguish homology from homoplasy because
- all homologies tell parts of the same story
 - all homologies look alike
 - all homoplasies tell parts of the same story
 - all homoplasies look alike
 - homoplasy exists independent of human perception
48. We know that the eukaryotes are a monophyletic group because they all share the homology of
- chloroplasts
 - DNA
 - flagella
 - multicellularity
 - nuclei
49. 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
50. You are taking a lab exam. The card says What is the ploidy level of these meiospores of *Riccia* of the Hepatophyta? You were certain that Hepatophyta 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