

Answer these questions on the Scantron answer sheet provided.

NAME:

USE #2 PENCIL ONLY.

Academic Honesty: Wandering eyes will result in a failing grade.

CHOOSE the BEST single answer for each.

1. Subdisciplines of plant systematics include
 - a. taxonomy
 - b. biogeography & floristics
 - c. phylogenetics
 - d. all of the above.

2. What definition best characterizes systematics
 - a. the study of how species are related to one another.
 - b. the study and classification of organismal diversity, and of the patterns and processes by which it is generated.
 - c. placing things into groups.

3. Plant taxonomy is
 - a. the theory and practice of plant nomenclature and classification.
 - b. the theory and practice of stuffing dead animals acquired while hunting.
 - c. the theory and practice of phylogeny reconstruction.

4. People who name species and produce taxonomic classifications above and below the rank of species are
 - a. systematists
 - b. taxonomists
 - c. ecologists
 - d. both a & b
 - e. each of a, b, & c.

5. In the strictest of senses, taxonomies provide
 - a. the means of communicating about organisms in all realms of both science and public life.
 - b. an understanding of the evolutionary relationships among species and higher level taxa.
 - c. a means to recognize species in the field.

6. Arrange the following into the correct taxonomic rankings from most inclusive (largest) to least inclusive (smallest).
(1) species, (2) family, (3) genus, (4) order, (5) kingdom
 - a. 1, 2, 3, 4, 5
 - b. 1, 3, 4, 5, 2
 - c. 5, 4, 2, 3, 1
 - d. 3, 4, 5, 2, 1

7. Most monocots have and most dicots don't have
 - a. "scattered" vascular bundles in the stem
 - b. two cotyledons
 - c. parallel leaf venation
 - d. both "a" and "c"
 - e. all of the above

8. Strictly speaking, a phylogeny is
 - a. the evolutionary history of a group of species; how species in a group are related to one another.
 - b. a systematist's hypothesis of how species are related to one another.
 - c. a formal system of classification created by a taxonomist.

9. In a plant life cycle, the gametophyte phase...
 - a. is a multicellular haploid phase during which gametes are produced.
 - b. is a multicellular diploid phase during which spores are produced.
 - c. is a unicellular haploid phase.
 - d. neither of the above.

10. In all species, the sporophyte directly produces
 - a. gametes
 - b. gametophytes
 - c. spores
 - d. flowers

11. Spores are produced in
 - a. gametangia
 - b. sporangia
 - c. archegonia
 - d. little structures on gametophytes

12. Contrast ferns and seed plants
 - a. ferns are generally smaller, whereas seed plants are larger in plant size
 - b. ferns have compound leaves, whereas all seed plants have simple leaves
 - c. in ferns the unit of dispersal are the spores, whereas the seed is the unit of dispersal in seed plants.

13. Another word for seed plant is
 - a. spermatophyte
 - b. angiosperm
 - c. gymnosperm
 - d. lycophyte

14. Angiosperms are more closely related (i.e., share a more recent common ancestor) with
 - a. lycophytes
 - b. leptosporangiate ferns
 - c. mosses
 - d. gymnosperms

15. Another word for tracheophyte is
 - a. vascular plant
 - b. gymnosperm
 - c. angiosperm
 - d. lycophyte

16. A synapomorphy of tracheophytes is
 - a. leaves (megaphylls)
 - b. the occurrence of tracheids or, more generally, tracheary elements
 - c. carpels

17. Tracheids are
 - a. special oil-secreting cells
 - b. water-conducting cells, dead at maturity
 - c. part of the xylem vascular tissue
 - d. hairs on a plant surface
 - e. both b and c

18. Leptosporangia are
 - a. spore-producing structures that characterize leptosporangiate ferns.
 - b. thinner-walled and produce a smaller number of spores than eusporangia.
 - c. both a & b
 - d. gametophytes
 - e. the answers are a, b, and d

19. The cycads are
 - a. vascular plants
 - b. seed plants
 - c. gymnosperms
 - d. all of the above

20. The cycads were
 - a. once extinct but are now back.
 - b. once more widespread than they are now.
 - c. small herbs.

21. Megasporangia...
 - a. occur only in heterosporous plants
 - b. occur only in homosporous plants
 - c. occur in seed plants
 - d. both a & c
 - e. both b & c

22. Synonymous with the megasporangium in Angiosperms is the
 - a. pollen
 - b. anther
 - c. seed
 - d. nucellus

23. Relationships among the major seed plant lineages are poorly understood.
 - a. True
 - b. False

24. The Bennettitales...
 - a. are a group of extant cycads
 - b. are now extinct
 - c. were once thought to be closely related to angiosperms
 - d. all of the above
 - e. b & c

Questions 25-33. Which of the 5 groups below are the statements in 25-33 referring to?

a. lycophytes b. euphyllophytes c. monilophytes (ferns & fern allies) d. tracheophytes e. spermatophytes

25. Have only microphylls, include the “club-mosses”.
26. The group defined by the presence of megaphylls and leaf-gaps.
27. The group defined by the occurrence of tracheids.
28. The group defined by the dominance of the sporophyte generation.
29. The group that “invented” the eustele.
30. The least inclusive group in which we may see tall trees with secondary xylem in the form of growth rings.
31. The most inclusive group of these is...
32. The group in which we find Equisetaceae.
33. The least inclusive group in which we find flowering plants.

Questions 34-44.

a. pollen b. seed c. ovule d. cone e. strobilis

34. The micro-gametophyte of seed plants.
35. A congested axis with attached sporophylls and the sporangia they bear.
36. A compound reproductive structure, comprising an axis with bracts, in the axils of which are flattened or peltate branches bearing ovules.
37. Will eventually produce sperm.
38. Structure in which you will find an egg cell.
39. The megasporangium of seed plants is found here.
40. The seed develops from this.
41. The _____ is delivered to the ovule in seed plants.
42. Ultimately derived from a micro-spore.
43. Found in some lycophytes (club-mosses).
44. Strictly speaking, found only in conifers.

45. A typical distinction among angiosperms is that between monocots and dicots.
- a. true
 - b. false
46. Some monocots are able to become rather woody and large or arborescent. Characteristics of some or all arborescent monocots include
- a. the lack of a vascular cambium producing regular concentric growth rings or wood.
 - b. a “woody”, fibrous trunks with many scattered vascular bundles as seen in cross-section.
 - c. a vascular cambium with regular concentric growth rings or wood.
 - d. both “a” and “b”
47. Banana trees are able to grow so tall on account of
- a. woody stems
 - b. stiff, overlapping and sheathing leaf bases
 - c. a secondary-thickening meristem that develops after the woody stem elongates
48. Many arborescent monocots are characterized by the action of at least a primary thickening meristem
- a. true
 - b. false
49. Potential angiosperm pollinators include
- a. birds
 - b. insects
 - c. geckos
 - d. wind
 - e. all of the above
50. Some aroids (members of the Araceae) release fragrances (odor) to attract pollinators via
- a. Thermogenesis of their inflorescence axis
 - b. Normal fragrance-producing cells in the flower petals.