

The number of points (out of a total of 153) that each question is worth is indicated in parentheses. For multiple choice questions, provide the BEST answer. Answer essay and short answer questions thoroughly but concisely; extraneous information may be counted against you. Also, if you are asked to list, for example, three items, listing more than three items may be counted against you. Good luck!

1. (3) Your name: _____
2. (3) A seed with morphological dormancy
 - a. requires scarification to germinate
 - b. requires light to germinate
 - c. has a hard seed coat
 - d. has an immature embryo
3. (3) Plants flowering in response to environmental stress is an example of
 - a. genetic diversity
 - b. polyploidy
 - c. apomixis
 - d. developmental plasticity
4. (3) Which type of tillage system will result in the greatest number of weed seeds in the top one cm of the soil profile?
 - a. moldboard plow
 - b. chisel plow
 - c. no-till
5. (3) That different accessions of common cocklebur exhibit different levels of competition with soybean is an example of
 - a. developmental plasticity
 - b. somatic polymorphism
 - c. polyploidy
 - d. genetic diversity
6. (3) Considering weeds as ruderals, a primary factor contributing to their competitiveness with crops is
 - a. their stable population sizes
 - b. their high reproductive outputs
 - c. their ability to tolerate stress
 - d. their long life cycles
7. (3) Phytochrome is
 - a. a light receptor
 - b. a plant hormone
 - c. an allelopathic compound
 - d. what you get when you smash your car into a tree
8. (3) This invasive weed, described in the article, Alien Invasion, is detrimental to rangelands in the northern Great Plains.
 - a. purple loosestrife
 - b. leafy spurge
 - c. old world climbing fern
 - d. kudzu

9. (3) The first major case of herbicide resistance was to this herbicide or group of herbicides
 - a. glyphosate
 - b. ALS inhibitors
 - c. triazines
 - d. chloroacetamides

10. (3) Which of the following does NOT influence the genetic diversity of a weed species?
 - a. whether it is self-pollinated or out-crossed
 - b. whether it is a polyploidy or diploid
 - c. whether or not it is capable of hybridizing with related species
 - d. All of the above can influence the genetic diversity of a weed species.

11. (3) Mistetoe is
 - a. a parasitic weed of trees
 - b. a member of the Scrophulariaceae family
 - c. a root parasite
 - d. a parasite of legumes

12. (3) K-selected plants
 - a. have high allocation to reproduction
 - b. are adapted to unstable environments
 - c. have fixed population sizes
 - d. have short generation times

13. (3) The C₄ pathway increases photosynthetic efficiency by
 - a. using a better RUBISCO
 - b. concentrating CO₂ in bundle sheath cells
 - c. utilizing both CO₂ and O₂ fixation reactions
 - d. fixing four carbon atoms per reaction

14. (3) Rhizomes are most likely to be found on a
 - a. summer annual
 - b. biennial
 - c. simple perennial
 - d. creeping perennial

15. (3) A plant that uses resources inefficiently
 - a. is not competitive
 - b. will compete well under competitive conditions
 - c. is unlikely to be a weed
 - d. will create a competitive environment

16. (3) Stratification
 - a. induces biennials to flower
 - b. breaks seed dormancy of summer annuals
 - c. promotes vegetative reproduction of perennials
 - d. promotes seed production of perennials

17. (3) Grass weeds growing with corn exhibit their competitive effect primarily by competing for
- nitrogen
 - light
 - carbon dioxide
 - oxygen
18. (3) A species that is monoecious
- must self-pollinate
 - must outcross
 - has perfect flowers
 - has separate male and female plants
 - has separate male and female flowers on the same plant
19. (3) The niche concept suggests that
- weeds will be strong competitors
 - weeds will have high reproductive outputs
 - plant species have high genetic diversity
 - plant species are specialized
20. (3) Herbicides comprise approximately what percentage of the U.S. agrochemical market?
- 10%
 - 35%
 - 70%
 - 95%
21. (3) A single female waterhemp plant under good growing conditions might produce how many seeds?
- 100
 - 1,000
 - 10,000
 - 100,000
22. (3) Forceful dehiscence is
- a primary mechanism for dispersal of vegetative propagules
 - a mechanism for overcoming seed dormancy
 - a mechanism of seed dispersal
 - illegal in most states
23. (3) “Without humans, there would be no weeds!” is a true statement if weeds are defined from which perspective?
- anthropocentric
 - biological
 - ecological
 - evolutionary
24. (3) Parasitic weeds
- do not exist in the U.S.
 - do not have chlorophyll
 - are extremely severe weed problems in some under-developed countries
 - all of the above

25. (3) Which of the following weeds produces aerial bulblets?
- wild garlic
 - Canada thistle
 - purple nutsedge
 - quackgrass
26. (3) Abscisic acid
- is a plant hormone that promotes dormancy
 - is a plant hormone that promotes germination
 - is a plant pigment that promotes dormancy
 - is a plant pigment that promotes plasticity
27. (3) In a typical agricultural field, seeds of most weed species persist
- for up to a year
 - two to three years
 - five to ten years
 - 20 years or more
28. (3) A biotype is a term used to describe
- species adapted to different biological conditions
 - genetically identical individuals found in diverse environments
 - genetically diverse individuals of a species
 - species adapted to different niches
29. (3) A self-pollinated species
- has no genetic diversity
 - vegetatively reproduces to obtain genetic variability
 - has high variability among and within populations
 - has low variability within populations and high variability among populations
30. (3) Approximately what percentage of all flowering plants are widely considered problematic weeds?
- 1%
 - 5%
 - 10%
 - 20%
31. (3) An agroecotype is a
- weed with high developmental plasticity
 - herbicide-resistant weed
 - crop mimic
 - parasitic weed
32. (3) According to the C, S, and R theory, C plants are adapted to environments of
- high stress and low disturbance
 - high stress and high disturbance
 - low stress and low disturbance
 - low stress and high disturbance

33. (3) In Illinois, seeds of a summer annual typically germinate in
- May
 - July
 - August
 - September
34. (3) Which of the following herbicide or groups of herbicides was most recently commercialized?
- 2,4-D
 - ALS inhibitors
 - triazines
 - chloroacetamides
35. (3) Invasive weeds are often successful in their new range because
- they exhibit high genetic diversity
 - they exhibit low developmental plasticity
 - they are displaced by native plants
 - they are released from their natural pests
36. (3) An experiment in which the density of one species is constant and the density of a second species changes is
- a replacement series
 - an additive experiment
 - a method for studying allelopathy
 - a negative interference experiment
37. (3) Allelopathy
- can be demonstrated by growing two plants together and determining if the growth of one is inhibited
 - has been reported for numerous species, but is difficult to document under field conditions
 - is more important than competition in terms of yield loss in agronomic crops
 - has been disproved for most weed species
38. (3) The critical weed-free period
- is determined from replacement series experiments
 - in soybean, lasts only a relatively short period of time
 - in corn, typically lasts until pollination
 - can occur only between planting and seed set
39. (3) Dodder is
- a parasite of trees
 - a member of the Scrophulariaceae family
 - a root parasite
 - a parasite of legumes
40. (3) Apomixis refers to
- asexual seed production
 - having more than one copy of the genome
 - hybridization between two species
 - somatic polymorphism

41. (6) Match the following:

- | | |
|-------------------|----------------------|
| ___ summer annual | a. day-neutral plant |
| ___ winter annual | b. long-day plant |
| ___ biennial | c. short-day plant |

42. (3) Which parasitic weed is under quarantine in the Carolinas?

43. (3) What is a haustorium?

44. (6) List the four fates of seed

45. (3) Your textbook indicated there is a particular situation in which a perennial weed could be treated as an annual weed, i.e., it could be easily controlled with a single herbicide application. What is this situation?

46. (3) A compound produced by one plant that is toxic to another plant is called what?

47. (6) Besides direct physical effects (e.g., kudzu climbing up a plant and toppling it) and indirect effects (e.g., a plant serving as an alternate host for a disease), what are the three types of plant-plant interactions?

48. (3) Plant-plant interference is usually detrimental to one or both plants. However, sometimes a plant might positively benefit from plant interference. Give an example of such a positive plant-plant interaction.