

I. Single-Answer Multiple Choice (2 points each): Circle the **one** solution that answers each question or completes each sentence.

1. Green manure crops
 - a. are often legumes.
 - b. are incorporated into soil for nutrient release.
 - c. tend to build soil organic matter.
 - d. **all of the above.**
 - e. both a and b

2. The greatest nitrogen contribution comes from which cover crop when turned under?
 - a. **Annual legumes**
 - b. Perennial legumes
 - c. Nonlegumes

3. What are compost teas used for?
 - a. microbial community building.
 - b. plant stimulators.
 - c. soil improvement.
 - d. **all of the above.**
 - e. both b and c.

4. Traditional composting of organic materials in one's backyard is carried out mostly by
 - a. bacteria.
 - b. fungi.
 - c. earthworms.
 - d. all of the above.
 - e. **both a and b.**

5. When making compost tea in a plastic container,
 - a. it is best to prevent aerobic conditions.
 - b. there is usually more water than compost in the container.
 - c. one can add growth stimulants or microbial food to the container.
 - d. all of the above.
 - e. **both b and c.**

6. Compared to chemical (inorganic) fertilizers, organic fertilizers
 - a. generally have higher nutrient contents per unit weight than do chemical fertilizers.
 - b. generally contribute more organic matter to the soil.
 - c. generally must be decomposed to inorganic nutrient ions before nutrient absorption can take place by plants.
 - d. all of the above.
 - e. **both b and c.**

7. Types of composting include
- carcass composting.
 - two-bin system.
 - windrow composting.
 - all of the above.**
 - both a and b.
8. Minimum internal temperature for pathogen reduction in a compost pile is
- 105°F.
 - 110°F.
 - 122°F.
 - 130°F.**
 - 155°F.
9. In the curing stage of the composting process,
- thermophiles dominate.
 - mesophiles dominate.**
 - pathogens are killed.
 - all of the above.
 - both a and c.
10. Concerning composting,
- turning the compost pile stimulates decomposition.
 - both oxygen and water are needed to compost efficiently.
 - composting is also called microbe farming.
 - all of the above.**
 - both a and c.
11. Compost teas additives include
- kelp extracts.
 - humic acids.
 - whey powder.
 - all of the above.**
 - both a and c.
12. The name of the person who developed the binomial system for naming plants is
- Linnaeus**
 - Jenny
 - Darwin
 - Hortus
13. Which type of composting generally requires the least management?
- passive composting**
 - active composting
 - turned composting
 - carcass composting

14. Possible disadvantages to composting include
- it being costly and time consuming.
 - it requiring adequate space.
 - the need to manage odors in urban areas.
 - all of the above.**
 - both b and c.
15. _____ are bacteria that infest roots of legume plants forming root nodules.
- Mycorrhizae
 - Rhizobia**
 - Amoeba
 - Autotrophs
 - Aerobes
16. Which of the following is not a function of roots?
- Manufacturing of carbohydrates (food).**
 - Absorption of water.
 - Anchoring of plants.
 - Respiration.
17. Which of the following is provided for a plant by its leaves?
- Production of carbohydrates (food)
 - Anchoring of plants
 - Photosynthesis
 - Both a and c**
 - All of the above
18. The main function of stems is
- to absorb water/nutrients from the soil and anchor the plant.
 - to transport water/nutrients and to support plant parts.**
 - to manufacture carbohydrates and store it for future use.
 - to provide food for humans and animals.
19. The four main parts of a complete flower are the
- pollen, ovary, pistil, and stamen.
 - pollen, ovary, sepals, and petals.
 - sepals, pistil, ovary, and stigma.
 - sepals, petals, stamen, and pistil.**
20. An advantage of producing seedlings in a greenhouse compared to direct seeding them in the garden is that
- it extends the growing season.
 - environmental conditions can be better controlled.
 - a lot of plants can be managed in a small place.
 - all of the above.**
 - both a and c.

21. When microbes breakdown fresh organic material, _____ of the carbon is incorporated into microbial cell tissue while the rest of the carbon is exhaled as carbon dioxide.
- 25%.
 - 33%**.
 - 50%.
 - 67%.
22. The stamen is
- the female part of the flower.
 - the part of the flower that produces pollen.**
 - the part of the flower that holds the stigma.
 - all of the above.
 - both a and b.
23. The pistil is
- the female part of the flower.**
 - the male part of the flower.
 - the bright, showy part of the flower that attracts pollinators.
 - the pollen producing part of the flower.
24. When two separate parent plants are involved in the pollination process, it is known as
- self pollination
 - cross-pollination**
 - bisexual pollination
 - asexual pollination
25. The first part of the new plant to emerge from the seed is the
- stem.
 - leaf.
 - radicle.**
 - endosperm.
26. Pollination is a sexual process in which pollen is deposited on the stigma of the plant. It starts the process of
- fertilization.
 - seed formation.
 - production of a fruit or seed coat.
 - all of the above.**
 - both b and c.
27. Concerning soil pH,
- most plants can take up nutrients best at pH 5 to pH 6.
 - sulfur can be used to reduce high-pH soils.
 - lime can be used to reduce low-pH soils.
 - all of the above.
 - both b and c.**

28. According to the book for the class,

- a. organic matter that hasn't been composted is a good addition to gardens in the short run but isn't appropriate for most gardens in the long run.
- b. manure should be composted before it is used for your vegetable garden.
- c. compost is especially good for improving poor quality soils in your garden.
- d. all of the above.
- e. **both b and c.**

II. **Multiple-Answer Multiple Choice** (1 point for each answer): Each problem set below consists of one problem with four possible answers. At least one answer listed is correct but two, three, or four of the answers may be correct. Mark "T" (for true) for each answer that solves the problem correctly and "F" (for false) for each answer that is incorrect.

29-32. When gardening, important practices to follow concerning soil include

- 29. **get a soil test done if you have not already.**
- 30. **don't overwater or overfertilize your garden.**
- 31. clay soils require fertilization and water more often than sandy soils.
- 32. the book for the class states that the best garden soils usually contain 1% organic matter.

33-36. Which of the following is important when "hardening off" plants?

- 33. Initially set seedlings in their containers in a sunny spot outside.
- 34. Increase water applications.
- 35. **Gradually increase outdoor time of seedlings from a few hours to eventually a full day.**
- 36. **Decrease nutrient applications.**

37-40. What is the verdict on compost teas?

- 37. They consistently have been shown to control disease or other microbes.
- 38. **They can be a valuable nutritional supplement.**
- 39. **They may provide beneficial microbes.**
- 40. **They can be a useful part of organic fertility management.**

41-44. Concerning seeds,

- 41. **fertilization is not necessary for seeds because they can germinate on their own.**
- 42. it's good to use plain garden soil as the growing medium when planting your seeds in container flats.
- 43. most seeds need light to germinate.
- 44. **seeds need to be kept constantly moist in order to germinate.**

45-48. Home composting

- 45. **can create a valuable soil amendment.**
- 46. will degrade the herbicides approved for use on lawns.
- 47. is successfully done in smaller spaces by compacting the compost pile.
- 48. **benefits from a bin or enclosure that provides insulation**

49-52. Things **not** to compost for addition to one's vegetable garden generally include

___ 49. **dog and cat poo.**

___ 50. **carcasses.**

___ 51. **meat and dairy wastes.**

___ 52. grass clippings.

53-56. We can make different kinds of tea by changing the

___ 53. **aeration.**

___ 54. **additive.**

___ 55. **temperature.**

___ 56. **compost.**

57-60. Trade-offs and barriers to adoption of cover crops include the following:

___ 57. **Cover crops compete for water.**

___ 58. **Cover crops compete for nutrients and space.**

___ 59. **The costs of cover crops can be prohibitive to a grower.**

___ 60. **Particular cover crops can bring in new pests.**

61-64. Legume crops commonly grown as a green manure

___ 61. include corn.

___ 62. **can reduce weeds.**

___ 63. should be incorporated into the soil after full bloom for maximum nitrogen contribution.

___ 64. provide nutrients for only one year.

65-68. Plant parts used in asexual reproduction include

___ 65. flowers.

___ 66. **leaves.**

___ 67. **stems.**

___ 68. **roots.**

69-72. Seeds can be comprised of the

___ 69. **endosperm**

___ 70. **cotyledons**

___ 71. **embryo**

___ 72. **seed coat**

73-76. Concerning seedlings and their containers,

___ 73. **it's best to label container flats so you know which seeds are which and when you planted them.**

___ 74. when growing seedlings inside, it's best to use incandescent rather than fluorescent light.

___ 75. **seedlings in the greenhouse can tolerate 16 hours of light a day.**

___ 76. **care must be taken not to overwater seedlings because of potential root rot.**

77-80. Advantages of adding compost vs. synthetic fertilizers to your garden soil include

____ 77. **its ability to increase the nutrient storage capacity of the soil by increasing the organic matter content of the soil.**

____ 78. **its ability to improve soil structure.**

____ 79. **its ability to increase the water storage capacity of the soil.**

____ 80. its ability to be added in large doses that are never toxic to plants.

III. Fill-Ins (2 points for each space): Fill-in each space below with the correct word or words.

81. In the most recent taste test in class, the food we tasted was _____. TORTILLA CHIPS

82. The two most important requirements for starting seeds in a greenhouse are _____ and _____ . ENOUGH WATER; WARM TEMPERATURES

83. Using microbes to control or kill other microbes is a form of _____. BIOCONTROL

84. When added, compost teas are usually sprayed on the _____. LEAVES or PLANT

85. “Dampening off” is caused by what kind of organism? _____ A FUNGUS

86. When planting your vegetable seeds in a planting mixture, good containers for the planting mixture include cutoff milk cartons, _____ , and

_____. DEEP-SIDED ALUMINUM PANS; SPECIAL SEED-STARTING SYSTEMS; WOODEN FLATS

87. A good time to add compost to your garden is when the C/N ratio of the compost is about _____. 25/1

88. The ovary of the flower develops into what plant part? _____. FRUIT

89. The ideal moisture content of a compost pile is usually around _____ percent. 50-60

90. In a carcass compost pile, the carcass itself is high in nitrogen and water so that it’s good to mix the carcass with a low nitrogen and water source, such as _____. STRAW; SAWDUST; WOODEN CHIPS

91. Incorporating organic matter with a C/N ratio of 35:1 into the soil will cause net _____. IMMOBILIZATION

92. _____ involves planting two or more types of plants in the same location. INTERCROPPING or INTERPLANTING

93. A temporary crop grown between cash crop production cycles for protection and soil improvement is called a _____. COVER CROP

94. A _____ is a crop that is sown to prevent nutrients from being flushed out of the soil. CATCH CROP

95. _____ are the ‘seed leaves’ of flowering plants and the food storage structure that seedlings rely on before being able to produce food through photosynthesis. COTYLEDONS

96. _____ is the pigment in the chloroplasts of the leaves that captures the energy from light during the process of photosynthesis. CHLOROPHYLL

97. The three types of leaf arrangements used to describe simple leaves are (1) alternate, (2) _____ , and (3) _____. OPPOSITE; WHORLED

98. A _____ is an underground stem. RHIZOME

99. The main function of flowers is _____. REPRODUCTION

100. _____ are plants that require two growing seasons to complete their life cycles. BIENNIALS