1. Which of the following is an advantage of grafting over other means of plant propagation?
   a. Inducing genetic variation in the propagated plants.
   b. Keeping the plant in juvenile phase.
   c. Hastening the mature phase on the grafted plant.
   d. Increasing the longevity of the grafted plants.

2. Which of the following grafting methods requires a condition of “slipping” of the bark on stock plants?
   a. Whip-and-tongue graft
   b. Cleft graft
   c. Bark graft
   d. Side graft

3. Root stocks used in grafting are mostly grown from seedling plants.
   a. True
   b. False

4. The fruit color on the grafted plants is affected by the genotype of the rootstock.
   a. True
   b. False

5. List four requirements that are essential for success of grafting:
   a. ______________________________
   b. ______________________________
   c. ______________________________
   d. ______________________________

6. What is meant by “topworking” and why is it used?
   _____________________________________________________________________________
   _____________________________________________________________________________

7. A female ginkgo tree, when grown isolated from a male ginkgo tree, does not produce fruit because of the absence of pollen. Which of the following would be considered best if you want to make the female tree produce fruit?
   a. Girdle the plant.
   b. Apply gibberellin on the plant.
   c. Topwork the female tree with a stem from a male plant.
   d. Plant a male plant nearby.

8. Usually, budded plants have a stronger union than the stem-grafted plants.
   a. True
   b. False
9. Which of the following is not likely to be an objective of plant propagation by grafting?
   a. To perpetuate selected clones.
   b. To add a new cultivar to an established plant (i.e., by top-working).
   c. To induce genetic segregation on the grafted plants.
   d. To take advantage of desirable characteristics of certain rootstocks.

10. In Asian countries, watermelons are grafted on gourd root stocks to:
    a. hasten fruit harvest at an early stage of plant growth.
    b. make the grafted plants resistant to root diseases like *Fusarium* and *Verticillium* wilts.
    c. obtain larger fruits.
    d. enhance the sugar content of the fruit.

11. The best method of grafting narrow-leaved evergreens like juniper is:
    a. budding.
    b. whip-and-tongue grafting.
    c. side-veneer grafting.
    d. bark grafting.

12. Which of the following grafting methods can best be used to repair damage on a tree trunk?
    a. Topworking
    b. Bark graft
    c. Bridge graft
    d. Patch graft

13. Explain the difference between “T-budding” and “chip-budding” using an illustration:
   _________________________________________________________________________
   _________________________________________________________________________
   _________________________________________________________________________

14. Fall budding is usually performed:
    a. during the late summer-early fall after the bark starts to adhere to the wood.
    b. during the late summer-early fall before the bark starts to adhere to the wood.
    c. when plants are defoliated.
    d. when plants become dormant.

15. Stone fruits (peaches, almond, apricot, etc.) are most suited for June budding.
    a. True
    b. False

16. The “inverted T-budding” is recommended in regions where it rains much during the budding season.
17. Proper alignment of cambium layers is essential for the success of grafting in both woody and herbaceous plants.
   a. True
   b. False

18. Define “top-budding.”

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_______________________________________________________________________________
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19. Which of the following is not an objective of using an interstock in grafting?
   a. To overcome incompatibility between scion and rootstock.
   b. To reduce the vigor of the scionwood.
   c. To enhance the vigor of the scionwood.

20. Define “layering” as it is used in plant propagation.

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_______________________________________________________________________________

21. What are the disadvantages of using layering as a means of plant propagation?

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_______________________________________________________________________________
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22. The largest number of cuttings can be obtained from a stock plant by:
   a. tip-layering.
   b. simple-layering.
   c. serpentine-layering.
   d. mound-layering.

23. Which of the following layering method is used to propagate the dwarf-apple tree rootstocks?
   a. Tip-layering
   b. Mound-layering
   c. Air-layering
   d. Simple-layering

24. The air-layering method of plant propagation can best be used for:
b. *Rosa hybrida* (Rose).

25. Tuber is a modified:
   
a. root.
b. stem.
c. leaf.
d. petiole.

26. Sweet potato and dahlia are propagated by:
   
a. tubers.
b. corms.
c. tuberous roots.
d. rhizomes.

27. Which of the following plants produces tunicate bulbs?
   
a. Easter lily
b. Gladiolus
c. Tulip
d. Iris

28. Pseudobulbs are found in:
   
a. Vanda orchids.
b. Cattleya orchids.
c. Phalaenopsis orchids.
d. Epidendron orchids.

29. Easter lily is propagated by bulb scales.
   
a. True
b. False

30. In which of the following methods of propagation, only the basal plate of a bulb is removed to encourage new bulblet formation?
   
a. Scooping
b. Sectioning
c. Scoring
d. All of the above.

31. What is meant by a “sympodial growth habit” in orchids?

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32. Which of the following orchids has a monopodial growth habit?
   a. Cymbidium  
   b. Vanda  
   c. Cattleya  
   d. Cyripedium

33. The production of commercially marketable Easter lily bulbs from scales takes _______ years.

34. Bulbils are usually produced on the (______ underground, ______ aboveground) stems. (Check one)

35. List three plants that are propagated by stolons.
   a. _______________________  b.______________________ c._________________________

36. Tunicate bulbs require more humid conditions than non-tunicate bulbs during storage.
   a. True  
   b. False

37. Explain the difference between “epiphytic” and “terrestrial” orchids:
   ____________________________________________________________________________
   ____________________________________________________________________________
   ____________________________________________________________________________

38. Pollination in orchids is achieved by the placement of “pollinia” on the stigma by pollinator insects. A pollinium contains a large number of imbedded pollen grains that germinate and fertilize as many as 150,000 ovules at a time.
   a. Both statements are true.  
   b. The first statement is true and the second statement is wrong.  
   c. The first statement is wrong and the second statement is true.  
   b. Both statements are wrong.

39. List two plant species that are propagated by corms.
   a. _____________________________  b._______________________________

40. Pineapples can be propagated by offsets.
   a. True  
   b. False

41. Define “micropropagation.”
   ____________________________________________________________________________
   ____________________________________________________________________________

42. List three advantages of micropropagation over other asexual method of plant propagation.
43. List three disadvantages of micropropagation over other means of asexual propagation.
   a. ____________________________________________  
   b. ____________________________________________  
   c. ____________________________________________  

44. What is meant by “organogenesis”?
   ________________________________________________
   ________________________________________________

45. What is meant by “somatic embryogenesis”?
   ________________________________________________
   ________________________________________________

46. Which of the following would be considered **least** effective for stimulating root induction during micropropagation?
   a. Reduction in nutrient concentration  
   b. Higher light intensity  
   c. Reduction in agar concentration in the culture medium  
   d. Increasing cytokinin concentration in the medium

47. Contrast “differentiation” vs. “dedifferentiation” as they are practiced in micropropagation:
   ________________________________________________
   ________________________________________________

48. List four different applications of micropropagation:
   a. ____________________________________________  
   b. ____________________________________________  
   c. ____________________________________________  
   d. ____________________________________________  

49. The Murashige and Skoog (MS) medium is one of the most common tissue culture media used in micropropagation.
   a. True  
   b. False  

50. Define “somaclonal variation” and explain why it is undesirable in micropropagation of plants.
   ________________________________________________
   ________________________________________________

51. **BONUS QUESTION** (3 Points)
    
    Make your own question from subjects that you have studied but were **not covered** in this exam, and answer it correctly
Honor Pledge:  Upon my honor I have neither given nor received aid in writing this exam.

Signed __________________________