2009 Agronomy Career Development: Written Exam

*All recommendations are based on Iowa State Extension Publications

1. Which of the following nutrients is NOT considered an environmental pollutant?
   A. Iron
   B. Phosphorus
   C. Nitrogen
   D. Potassium

2. Which of the following soil types are most sensitive to soil erosion as it affects corn productivity?
   A. Loess
   B. Glacial till

3. Soybean cyst nematode numbers increase in the soil as what soil factor increases?
   A. Soil water content
   B. Soil pH
   C. Soil phosphorus level
   D. Sand content in the soil

4. When corn follows red clover you can take a nitrogen credit of _____ pounds/A.
   A. 40
   B. 60
   C. 80
   D. 120

5. Studies have shown that winter cereal grains and red clover are excellent crops for the suppression of:
   A. Corn rootworm
   B. Soybean Cyst Nematode
   C. Weeds
   D. All of these are suppressed

6. Which term or terms are defined legally?
   A. Natural
   B. Organic
   C. Eco-friendly
   D. All of these are defined by law

7. Switchgrass is established from:
   A. Seed
   B. Plugs
   C. Cuttings
   D. Stolons

8. To realize 100% of the yield potential from corn, it should be planted no later than:
   A. April 25th
   B. May 5th
   C. May 15th
   D. May 25th

9. The persistence of legumes is often limited by:
   A. Soil pH
   B. Soil fertility
   C. Soil drainage
   D. All of the above

10. The longevity of a forage species is determined greatly by:
   A. Cold hardiness traits
   B. Types of tillage
   C. Seeding rate
   D. Palatability

11. At what growth stage in soybeans, would a decrease in stand cause the greatest reduction in yield?
   A. VC
   B. V3
   C. V6
   D. Yield would be equally reduced in all of these growth stages

12. Most nitrogen accumulation in a corn plant occurs at what stage?
   A. Prior to 4 leaf stage
   B. Between 4 leaf stage and tasseling
   C. Between tasseling and ear set
   D. Between ear set and maximum dry ear weight

13. Which of the following is NOT tested for in the Iowa Soybean Performance Test?
   A. Chlorosis
   B. Lodging
   C. Soybean cyst nematode resistance
   D. Height of lower pods

14. The rate at which a corn hybrid develops in Iowa is commonly related to:
   A. Rainfall
   B. Temperature
   C. Fertility
   D. Soil type

15. In corn production the R1 stage would be the:
    A. Silking stage
    B. Milk stage
    C. Dough stage
    D. Dent stage

16. At what growth stage does the growing point of corn first come above the ground making the seedling susceptible to frost and hail damage?
    A. V3
    B. V6
    C. V12
    D. R1

17. The indeterminate growth habit of Corn Belt soybean varieties is characterized by:
    A. Plants growing to full height then flowering
    B. Plants branching to cover the area between rows
    C. Plants sending up tillers to make up for low populations
    D. Plants continuing vegetative growth after flowering begins

18. Iowa is the leading soybean producer in the United States. Iowa accounts for approximately ____% of the U.S. soybean acreage.
    A. 5
    B. 15
    C. 22
    D. 32

19. In the Midwest _____% of the flowers produced by soybean plants are aborted and never contribute to yield.
    A. 10-15
    B. 25-30
    C. 45-50
    D. 60-75

20. On soybean roots, soybean cyst nematode infections can inhibit the formation of what?
    A. Tap roots
    B. Nitrogen-fixing nodules
    C. Root hairs
    D. Brace roots

21. If a producer elects to use the late spring nitrogen test, it should be used when the plants are _____ inches tall.
    A. 2-4
    B. 4-6
    C. 6-12
    D. Any of these heights are acceptable

22. Soybean cyst nematodes make which of the following soybean diseases significantly worse?
    A. Sudden death syndrome
    B. Soybean rust
    C. Soybean mosaic virus
    D. Bacterial blight

23. Which nutrient is a major concern in surface water because it may stimulate algae growth?
    A. Magnesium
    B. Potassium
    C. Phosphorus
    D. Calcium

24. Topsoil thickness is most important for good crop yields when:
    A. Rainfall for the season is normal
    B. Rainfall for the season is below normal
    C. Rainfall is not important for this question
    D. Rainfall for the season is above normal

25. Which of the following is a serious water quality concern?
    A. Nitrogen fertilizer
    B. Phosphorus fertilizer
    C. Sediment
    D. All of these are serious water quality concerns

26. Intercropping winter cereal grain and red clover:
    A. Protects the soil from erosion
    B. Reduces nitrate leaching
    C. Requires little tillage if following soybeans
    D. All of the above are true

27. Which statement best reflects the use of GMOs (ex. herbicide resistant crops) in organic agriculture?
    A. Not allowed at all
    B. Allowed on a restricted basis
    C. Allowed for selected crops
    D. No restrictions at all

28. To sell a product as "organic" the crop must have been raised on land that no synthetic chemical inputs were used for the previous _____ years.
    A. 3
    B. 5
    C. 7
    D. 10

29. Switchgrass has limited production for how many years following seeding?
    A. Production is not limited at all following seeding
    B. 2-3
    C. 4-5
    D. 6-7

30. Switchgrass will use as much or more of which nutrient when compared to corn?
    A. Nitrogen
    B. Phosphorus
    C. Potassium
    D. Iron

31. Under optimum conditions, plant populations (plants/acre) for corn should be:
    A. 24,000-26,000
    B. 26,000-28,000
    C. 28,000-30,000
    D. 32,000-35,000

32. If corn planting is delayed until May 25th, you should select a hybrid that matures _____days earlier than a full season hybrid adapted for that area.
    A. 5
    B. 10
    C. 15
    D. It is early enough, don't change the maturity yet

33. Which of the following is most desirable to seed for pasture and hay/pasture meadows?
    A. One selected grass
    B. One selected legume
    C. A mixture of 2-3 grasses and legumes
    D. A mixture of 5-6 grasses and legumes

34. Which of the following might contribute to poor soybean stands?
    A. Poor seedbed
    B. Poor quality seed
    C. Inaccurate planter adjustment
    D. All of the above

35. Data suggest that yields from soybeans with a 10% decrease in stand are:
    A. Increased slightly
    B. Not changed (the plants will compensate)
    C. Decreased by 2-3%
    D. Decreased by 10-20%

36. Without N fertilizer, corn yields on productive soils average about ____% of the optimum yield.
    A. 25
    B. 40
    C. 55
    D. 75

37. Research shows that you can apply____ pounds less N in the spring to get equal results compared to N applied in the fall.
    A. 20
    B. 40
    C. 80
    D. 100

38. In the Iowa Crop Performance Test for soybeans, an entry was considered mature when ____ % of the pods had turned brown.
    A. 100
    B. 95
    C. 75
    D. 50

39. Soybean varieties in the Iowa Crop Performance Test are evaluated for:
    A. Protein content
    B. Starch content
    C. Oil content
    D. Protein and oil content
    E. Protein , starch, and oil content

40. Which "signal word" on a pesticide would indicate the highest level of toxicity?
    A. Danger
    B. Caution
    C. Warning
    D. Poison

41. When using an IPM approach to controlling pests, you would:
    A. use no chemicals
    B. use chemicals on a limited basis
    C. use an "organic" approach to control pests
    D. consider a variety of control measures – crop rotation, biological controls, and chemicals

42. Which of the following would be an example of a cultural weed management strategy?
    A. Hand pulling
    B. Crop rotation
    C. Herbicide application
    D. Rotary hoeing

43. A farmer's production costs for corn totals $580 per acre and the selling price for corn is $3.40 per bushel. If the corn yields 180 bushels per acre, what is the profit above production costs per acre?
    A. $12
    B. $32
    C. $72
    D. $612

44. Your sprayer holds 800 gallons and you spray 10 gallons per acre. If the chemical label calls for 3 ounces per acre, how much chemical must you put in a full sprayer tank?
    A. 7.5 quarts
    B. 2.5 gallons
    C. 7.5 gallons
    D. 30 gallons

45. You have a test plot that is 600 feet long and each variety is planted 24 rows wide. You plant with a 12 row, 30 - inch planter and have 20 varieties. How many acres do you need for the test plot?
    A. 3.6
    B. 6.61
    C. 8.26
    D. 16.53

46. A farmer desires to plant the recommended rate of 80 pounds of live oats per acre. The seed tag shows that the germination rate is 94%. How many pounds of seed must one plant per acre?
    A. 75.2
    B. 85.1
    C. 92.8
    D. 94

47. In a yield trial a farmer harvested 3124 pounds of shelled corn from 0.3 of an acre. What was the yield per acre?
    A. 937.2 bushels
    B. 141.3 bushels
    C. 185.95 bushels
    D. 93.72 bushels

48. If anhydrous costs $1200 per ton and is 82% N, what is the cost per pound of nitrogen?
    A. $1.46
    B. $0.492
    C. $0.108
    D. $0.732

49. A soil test calls for 85 pounds of P_2O_5 per acre. How many pounds of (18-46-0) would you need to apply to meet the requirements?
    A. 92
    B. 106
    C. 185
    D. 272

50. Agronomy is the science of:
    A. soil and soil fertility
    B. plants and plant growth
    C. environmental sustainability
    D. all of the above and more

Agronomy 2009

1. D.
2. B.
3. B.
4. C.
5. D.
6. B.
7. A.
8. B.
9. D.
10. A.
11. C.
12. B.
13. D.
14. B.
15. A.
16. B.
17. D.
18. B.
19. D.
20. B.
21. C.
22. A.
23. C.
24. B.
25. D.
26. D.
27. A.
28. A.
29. B.
30. A.
31. C.
32. A.
33. C.
34. D.
35. C.
36. C.
37. B.
38. B.
39. D.
40. A.
41. D.
42. B.
43. B.
44. A.
45. D.
46. C.
47. C.
48. D.
49. C.
50. D.