1. Of the following, you would expect soil erosion rates to be the smallest on a ______ rotation.
   A. corn-corn  
   B. corn-soybean-wheat  
   C. soybean-soybean  
   D. corn-soybean-wheat-alfalfa hay

2. You plan to plant corn, in which rotation listed above will you need to apply the least nitrogen.
   A. corn-corn  
   B. corn-soybean-wheat  
   C. soybean-soybean  
   D. corn-soybean-wheat-alfalfa hay

3. Which of the following soybean relative maturity groups will flower first in central Illinois, Indiana, and Ohio?
   A. Group 2  
   B. Group 3  
   C. Group 4  
   D. all groups flower the same

4. A hectare is an example of a(n) ______ measurement.
   A. area  
   B. volume  
   C. length  
   D. width  
   E. height

5. Which below will remove the most nitrogen in the harvested portion?
   A. grain sorghum (lbs/cwt)  
   B. wheat (lbs/bu)  
   C. corn for silage (lbs/wet ton)  
   D. corn grain (lbs/bu)  
   E. soybeans (lbs/bu)

6. A legume flower always has ______ sepals and ______ petals.
   A. 4,4  
   B. 5,5  
   C. 6,4  
   D. 7,4  
   E. it varies

7. The corn plant on the right is at what growth stage?
   A. V4  
   B. VE  
   C. V2  
   D. R1

8. The anatomical structure labeled 1 is ___.
   A. plumule  
   B. coleoptile  
   C. nodal root  
   D. 1st leaf  
   E. radicle

9. The anatomical structure labeled 2 is ___.
   A. plumule  
   B. coleoptile  
   C. nodal root  
   D. 1st leaf  
   E. radicle

10. Corn is a grass and is a ______ and has a ______ root system.
    A. dicot, tap  
    B. monocot, fibrous  
    C. dicot, fibrous  
    D. monocot, tap

11. A hybrids normal GDD is 2700, rain has delayed planting until May 29 so you would expect the GDD for maturity to be which below?
    A. unchanged  
    B. 2890  
    C. 2510  
    D. 3010  
    E. 2450

12. You would scout corn for which problem in early June?
    A. ear rot  
    B. fall army worm  
    C. stalk rots  
    D. seed corn maggot
13. The protective outer covering of a grain kernel is the
   A. pericarp  B. endosperm  C. skin  D. coleoptile

14. Conservation tillage is defined as any tillage system, which leaves at least _____ crop residue on the soil surface after ____________.
   A. 30%, harvest  B. 40%, harvest  C. 30%, planting  D. 40%, planting

15. Which of the following nutrients has limited availability in soils with a pH in the range of 5.5-6.0?
   A. potassium  B. iron  C. manganese  D. phosphorus

16. A sprayer that you bought at an auction has a tank 4 feet in diameter and is 6 feet long. The sprayer's tank capacity is approximately _____ gallons.
   A. 550  B. 650  C. 750  D. 850  E. 950

17. You and a neighbor want to buy a farm of 520 hectares in Brazil, how many acres is this farm?
   A. about 2000 acres  B. about 520 acres  C. about 1285 acres  D. about 260 acres

18. During spring tillage before planting soybeans you notice white U-shaped grubs with a raster seen at the right. Which action should you take?
   A. If more than 2 grubs/cubic foot don’t plant soybeans
   B. Plant soybeans grubs are harmless to roots
   C. Don’t plant soybeans root pruning will give yield loss

19. How many 10" corn plants should you sample for tissue analysis of potassium?
   A. 10-20  B. 20-30  C. 40-50  D. 50-100

Answer questions 20-23 with this information. You have a dark colored silt loam field where you are planning your next crop of soybeans that hopefully produce 50 bu/A. The preceding crop was corn. Soil test results showed the following: P₂O₅ – 10 ppm P, K₂O – 75 ppmK, Mg - 120 lb/A, buffer pH of 6.8 and CEC – 20. You desire adequate soil test levels.

20. You should place ______ lb. of phosphorus per acre on this area according to the above Bray P₁ test.
   A. 0  B. 35  C. 40  D. 55  E. 65

21. You should place ______ lb. of potassium per acre on this area of the field for build-up to occur over 3-5 years.
   A. 0  B. 45  C. 90  D. 190  E. 290

22. A minimum of ______ percent of the potassium fertilizer should be banded given this situation.
   A. 10  B. 25  C. 50  D. 75  E. 90

23. Lime is needed on this field.
   A. True  B. False
24. What would be the estimated yield per acre of soybean having a row width of 7 inches and 2.5 plants per foot of row if each plant averaged 22 pods?
A. 45 bu/acre  B. 50 bu/acre  C. 55 bu/acre  D. 60 bu/acre  E. 65 bu/acre

25. A bushel is a measure of
A. area  B. weight  C. volume  D. density

26. Which of the following corn relative maturity groups are most likely to yield the least and have a minimal growing degree day requirement?
A. early  B. medium  C. full  D. it does not matter

27. A typical Indiana forage yield on a productive alfalfa field would be ______ tons/acre/year.
A. 1  B. 4.5  C. 15  D. 25.5  E. 100

28. When planting seed from your bin (i.e. wheat or soybeans) you notice that the seed is small. This means you have ______ seeds per pound and will use a ______ seeding rate in comparison to large seed.
A. fewer, higher  B. fewer, lower  C. more, higher  D. more, lower

29. Herbicides are
A. chemicals that may control or kill plants, animals, bacteria or anything that is considered an undesirable pest
B. a group of chemicals that control or kill plants like weeds in crop fields or lawns
C. a chemical group that control fungus organisms and are commonly used for seed treatment when planting corn
D. chemicals that kill all bacteria that are harmful in crop fields and crop storage areas like grain bins
E. a group of chemicals targeting animals like ground hogs or wood chucks that forage on soybeans

30. If you had a pigweed infestation of 1 plant per 10 ft of row your soybean yield reduction is estimated to be:
A. 70%  B. 60%  C. 50%  D. 40%  E. 30%

31. Which insect’s life cycle is best described as an incomplete metamorphosis?
A. European corn borer  B. black cutworm  C. fall armyworm  D. grasshopper

32. Of the following types of plants, which is most likely to propagate using stolons, rhizomes, or creeping roots?
A. winter annuals  B. biennials  C. perennials  D. summer annuals

33. You are an extension agent in your home county and farmer Jake calls with a weed problem. You determine that the weed is a grass type and has a round sheath with clasping auricles and a membranous ligule. What is the weed?
A. barnyardgrass  B. johnsongrass  C. quackgrass  D. witchgrass  E. shattercane
34. Livestock performance is better on a legume-grass mixed pasture than a pure stand legume or grass pasture.
   A. true          B. false

35. Farmer Bill is pulling an 8-year-old Ag-Chem sprayer that he bought at the ACRE Consignment auction last spring. It is outfitted with a 500 gallon tank with 45 foot booms with 20 nozzles each putting out 0.4 GPM. Bill is using a 2000 Ford tractor to pull it at 4 mph. What is the output in GPA?
   A. 22          B. 19          C. 16          D. 8.7

36. The ______________ causes heaving in legumes
   A. frost and freeze action against the wedged shaped taproot
   B. over fertilization of potassium and nitrogen that results in root bulge out
   C. dry soil conditions that cause the roots to shrivel and come out of the soil
   D. constant cold sub-zero temperatures and snow.
   E. all of the above

37. Wheat planting dates are most influenced by
   A. Hessian fly free date   B. soil temperature   C. scab free date
   D. too little soil moisture   E. first frost of the fall season

38. Soybean varieties are frequently identified by their
   A. seed surface texture   B. seed size   C. hilum color   D. tendency to crack

39. How many acres of corn can you store in a bin 24’ in diameter, 18’ high with a cone shaped roof that peaks 5’ above the edge, if your yield is 150bu/acre?
   A. about 100   B. about 77   C. about 50   D. about 27   E. about 17

40. The GDD maturity rating system for corn is based on the
   A. sign of the moon at planting   B. number of growing degree days accumulated after planting
   C. days between emergence and tasseling   D. days between planting and maturity