

**National FFA 2013 Agronomy Career Development Event
Written Test**

50 multiple choice questions

Select the best answer

1. A rhizome can be found on which of the following plants?
 - a. strawberry
 - b. sugarcane
 - c. Kentucky Bluegrass
 - d. Bermuda grass

2. Alluvial soils are soils that have been moved by:
 - a. glaciers
 - b. water
 - c. volcano
 - d. wind

3. Which of the following plants are not able to symbiotically fix nitrogen?
 - a. cotton
 - b. sweet clover
 - c. lentils
 - d. peas

4. In order for nitrogen fixation to occur in legumes, which of the following must be present in the soil?
 - a. a cation that reacts with organic matter
 - b. gram positive bacteria
 - c. rhizobium bacteria
 - d. phosphorus fertilizer

5. Nitrogen fixation is a process by which atmospheric nitrogen is converted to:
 - a. ammonia
 - b. sulfur
 - c. 16-16-16
 - d. urea

6. Seed inoculation treatments for soybean production may be needed if:
 - a. the soil has a high clay content
 - b. soybeans have not been grown in the field before
 - c. soil pH is 7 or above
 - d. a soil test indicates a high amount of sulfur

7. An example of a plant that has pinnately compound leaves is:
- a. puncture vine
 - b. field bindweed
 - c. morning glory
 - d. Canada Thistle
8. An example of a parasitic plant is:
- a. watermelon
 - b. alfalfa
 - c. wild carrot
 - d. dodder
9. Soils that warm up more slowly in spring, are harder to till, hold water and nutrients better than other soils are:
- a. sand
 - b. clay
 - c. silt
 - d. forest soils
10. The way sand, silt and clay are grouped together is called:
- a. soil profile
 - b. soil structure
 - c. soil compaction
 - d. soil geology
11. Clay soils would most likely be deficient in:
- a. N
 - b. P
 - c. K
 - d. S
12. Surface creep is erosion caused by :
- a. tillage
 - b. water
 - c. wind
 - d. glacier
13. It is found at the base of the leaf blade of grass plants. It is the outgrowth from the sheath and can be used to identify grasses. This plant structure is a:
- a. crown
 - b. ligule
 - c. petiole
 - d. node

14. Your soil test recommends 60 pounds of nitrogen per acre applied to your quarter section field. How much 32-0-0 do you need to apply per acre to meet this recommendation?
- 190 lbs.
 - 150lbs.
 - 444lbs.
 - 245lbs.
15. Which of the following plant is a perennial?
- bull thistle
 - sweet clover
 - pigweed
 - alfalfa
16. The majority of tillers on a wheat plant develop from the:
- roots
 - leaves
 - crown
 - stems
17. The secondary nutrients are:
- calcium, manganese, and sulfur
 - calcium, magnesium, and sulfur
 - copper, magnesium, and sodium
 - sulfur, calcium, and phosphorus
18. The food source for an emerging plant is the:
- coleoptile
 - endosperm
 - roots
 - cotyledons
19. A method to avoid herbicide resistance from occurring is to:
- use a stronger dose of herbicide
 - rotate crops and herbicides with different modes of action
 - plant forage crops
 - plant the same crop but different variety
20. A system used by agronomists to identify the growth and development of cereal grains is the:
- Tillering scale
 - P. T. Hiller scale
 - Growth Stage scale
 - Feekes scale

21. Oats have the following type of inflorescence:
- a. spike
 - b. raceme
 - c. panicle
 - d. umbrelle
22. A barley plant is considered a :
- a. dicot
 - b. monocot
 - c. unifoliate
 - d. trifoliate
23. Which of the following crops reproduces asexually:
- a. sugarcane
 - b. sugar beets
 - c. canola
 - d. lentils
24. To what plant family does wheat belong?
- a. gramineae
 - b. leguminoseae
 - c. gluten
 - d. brassica
25. Which of the following plants is not a member of the crucifereae plant family?
- a. broccoli
 - b. canola
 - c. potato
 - d. mustard
26. Mustards tend to be allelopathic with grasses. Allelopathic plants produce:
- a. symbiotic relationships with other plants
 - b. useful fertilizers for the soil
 - c. contact insecticides
 - d. chemical toxins that impair plant growth
27. Lacustrine soils are soils that have been deposited by:
- a. glaciers
 - b. water
 - c. volcanos
 - d. wind

28. You notice some of your plants appear weak, spindly and slightly purple in color. Chances are there is a deficiency in:

- a. chlorine
- b. nitrogen
- c. phosphorus
- d. potassium

29. Additional units of an input, for example fertilizer, may not always be profitable. Which economic concept illustrates this point?

- a. maximum input ratio
- b. diminishing returns
- c. break even analysis
- d. critical profit point

You have a contract with an oil seed company for the production of 100 acres of non GMO canola. You want to treat your field with Treflon, a pre-emerge herbicide, to give your crop a start ahead of the weeds. According to your agronomist application rate is 2 pints per acre. Cost of a gallon of Treflon is \$20 and application cost is \$7.50 per acre. Using this information answer the following questions.

30. How many gallons of Treflon should you purchase?

- a. 2
- b. 8
- c. 20
- d. 25

31. What is the total cost of having your field treated with Treflon?

- a. \$500
- b. \$750
- c. \$1250
- d. \$2000

32. Chemicals emitted by an organism to influence the behavior of other organisms of the same species are called:

- a. parasites
- b. pheromones
- c. pyrithroids
- d. surfactants

33. Which of the following is considered an oilseed crop?

- a. popcorn
- b. flax
- c. cabbage
- d. peas

34. Maximum day temperature minus minimum day temperature divided by 2 minus 32 is the formula for finding:

- a. growth stage of corn
- b. growth stage of wheat
- c. correct temperatures to spray
- d. degree days

35. You are reading a material safety data sheet and come across the term LD50. What does this mean?

- a. it is the amount of the substance required, by body weight, to kill 50% of the population
- b. lethal dose diluted by 50%
- c. 50% of container is a legal dose
- d. legal dose is diluted by 50% volume

36. At what stage would corn be ready to harvest?

- a. V10
- b. VT
- c. R1
- d. R6

37. Which nutrient is a major concern in surface water because it may stimulate algae growth?

- a. zinc
- b. phosphorus
- c. calcium
- d. sulfur

38. A barley farmer in Eastern Oregon desires to plant the recommended rate of 65 pounds per acre of live seed. The seed tag shows that the germination rate is 90%. How many pounds of seed should he plant?

- a. 65 pounds
- b. 58.5 pounds
- c. 72 pounds
- d. 80 pounds

39. Your county extension agent is counting plants in your corn field to determine plant population and eventually yield per acre. The corn is planted in 30 inch rows with an average of 42 plants per 20 foot length. What is the plant population per acre?

- a. 33,100
- b. 37,540
- c. 41,320
- d. 36,590

40. _____ is a mechanism by which chemical energy is converted from one form to a more usable form, with the release of heat.
- vernalization
 - cellular respiration
 - cation exchange
 - carbon sequestration
41. Guard cells are used to open and close the
- petiole
 - stoma
 - vascular system
 - stamen
42. Infested, in grain grading terms refers to:
- the amount of weed seeds in the sample
 - wheat of other classes in the sample
 - smut or ergot in the sample
 - insects injurious to stored grains in the sample
43. Which of the following factor is not used in determining grain grades?
- moisture
 - smell
 - broken or split kernels
 - stones
44. Your FFA advisor notices aphids in your chapter's greenhouse. He releases lady beetles to control the aphids. This is an example of:
- organic control
 - natural control
 - biological control
 - cost savings
45. The fertilizer Urea,
- contains 32% N
 - can only be used as a foliar feed for plants
 - most efficient if incorporated into soil
 - should not be used in fertilizer blends
46. The reason for adding liquid fertilizer solution to pesticide applications is to:
- optimize the pesticide activity
 - aid in the penetration and absorption of the pesticide
 - aid in the translocation of the pesticide to the active site
 - all the above

Use the following information to answer questions 47-50. Tyler has a field of corn that measures 1320' by 2640'. He has a farm average of 175 bushels per acre of corn. His soil test shows that he needs to add 160 pounds of nitrogen per acre to meet his average yield. Tyler has applied anhydrous ammonia in the fall and starter fertilizer in the spring at the same time he plants his corn. In the spring he wants to apply 60 pounds of P using a starter fertilizer, 10-50-2-0.

47. How many acres is the field Tyler is seeding?

- a. 40
- b. 80
- c. 160
- d. 320

48. How many pounds of N is applied during the seeding process?

- a. 10
- b. 60
- c. 12
- d. 6

49. How many pounds of anhydrous ammonia should he apply this fall?

- a. 180
- b. 360
- c. 412
- d. 82

50. How many pounds of 10-50-2-0 does he need to apply to get the 60 pounds of P?

- a. 100
- b. 120
- c. 140
- d. 200