



2010
State Agronomy CDE
Montana State University
General Knowledge Test
Please fill out the "Exam" section of the answer key

Please do not write on this test!

1. Phosphorus is an essential nutrient for plants primarily for?
A. germination C. cell division
B. root formation D. reduced lodging

2. There are _____ square feet in an acre.
A. 43,560 C. 4,500
B. 5,280 D. 90,000

3. Herbaceous stems
A. are tough and have bark around them
B. come from herbs
C. are green and are not winter hardy
D. are part of the bulb

4. An underground modified stem is called a:
A. Culm C. Stolon
B. Style D. Rhizome

5. A pre-emergence herbicide is applied
A. after the weed or crop is present
B. before the weed or crop is present
C. at the time of planting
D. none of the above

6. If you plan to store your wheat, the moisture content at storage should not exceed _____ percent.
A. 20 C. 12
B. 15 D. 18

7. Presence of this in any amount will result in the wheat being classified as "Sample Grade".
- A. stones
 - B. glass
 - C. ergot
 - D. garlic
8. Applying nitrogen to legume crops such as alfalfa and red clover is not recommended because...
- A. forage crops do not require nitrogen for growth
 - B. with the help of bacteria these crops fix atmospheric nitrogen
 - C. application of nitrogen to legumes can result in prussic acid poisoning
 - D. both B and C
9. Photosynthesis will work best in which temperature range?
- A. 50 to 60 degrees
 - B. 95 to 100 degrees
 - C. 60 to 70 degrees
 - D. 65 to 85 degrees
10. What is Montana's state grass?
- A. Basin Wildrye
 - B. Bluebunch wheatgrass
 - C. Blue grama
 - D. Smooth brome
11. If you are a commercial wheat producer, which would you most likely purchase if you wanted a new variety?
- A. foundation seed
 - B. breeder seed
 - C. registered seed
 - D. certified seed
12. Triticale is a cross between what?
- A. oats and wheat
 - B. corn and barley
 - C. barley and oats
 - D. rye and wheat
13. Vernalization is a process some plants require to flower and produce seed. This process involves exposure to:
- A. cold temperatures
 - B. hot temperatures
 - C. over 12 hours of sunlight
 - D. under 12 hours of sunlight
14. How much should a bushel of barley weigh?
- A. 48 pounds
 - B. 52 pounds
 - C. 58 pounds
 - D. 60 pounds
15. The tallest growth point on a grass containing seeds is technically referred to as the:
- A. seed head
 - B. auricle
 - C. pinnacle
 - D. inflorescence

16. Your soil test recommends 190 lbs of nitrogen per acre applied to your 22 acre barley field. How much urea(46-0-0) do you need to apply to meet the recommendation for this field?
- A. 460 pounds
 - B. 4.54 tons
 - C. 8749 pounds
 - D. 3 tons
17. Which of the following groups of essential elements are classified as micro-nutrients?
- A. Mn, K, and Ca
 - B. P, N, and K
 - C. Mg, Ca, and S
 - D. Zn, Mn, and Mb
18. Farmer Bob has a half section of dry land wheat in eastern Montana. He has his wheat custom harvested and is quoted a cost of \$11 per acre plus \$0.21 per bushel. Bob expects a yield of 45 bushels per acre. What are his total harvest costs?
- A. \$3520
 - B. \$3024
 - C. \$6544
 - D. \$15.95
19. Nematodes are _____.
- A. tiny little parasitic worms
 - B. flagellated fungal hyphae
 - C. rod shaped bacteria
 - D. viroids
20. Which of the following would be an advantage of increased organic matter?
- A. improves soil tilth
 - B. provides a “storehouse” for nutrients
 - C. provides surface protection
 - D. all of the above
21. The horizon that is most supportive of plant growth is
- A. horizon A
 - B. horizon B
 - C. horizon C
 - D. horizon O
22. This type of modified stem is has thickened, compact fleshy stems
- A. corms
 - B. spikes
 - C. bulbs
 - D. tubers
23. Nitrogen fixation by a legume occurs in the:
- A. leaves
 - B. flowers
 - C. stolons
 - D. roots
24. The first mechanical seed drill was invented in 1730 by

- A. Jethro Tull
- B. Cyrus Doolittle
- C. John Deere
- D. Abraham Lincoln

25. A soil having a pH value greater than 7.0 is considered:

- A. subsoil
- B. acidic
- C. basic
- D. neutral

26. The scientific name for Alfalfa is *Medicago sativa* L.

- A. True
- B. False

27. The leaf Stomata are closed by guard cells

- A. True
- B. False

28. In most seeds the embryo remains dormant until conditions are satisfactory for germination.

- A. True
- B. False

29. Winter Wheat will survive temperatures of -40 F during the winter as long as there is sufficient snow cover.

- A. True
- B. False

30. A 1000 Lbs cow is equal to 1 AUM

- A. True
- B. False

31. Grass leaf blades have a sheath, collar, blade, ligule, and auricles.

- A. True
- B. False

32. Monocot leaves have parallel veins.

- A. True
- B. False

33. How many square feet in a section?

- A. 43,560
- B. 27,878,400
- C. 25,497,350
- D. 12,345,678

34. A Mule Deer is equivalent to how many AUM's

- A. 0.20
- B. 0.50
- C. 0.30
- D. 1.10

35. What class of noxious weed is leafy spurge listed by the Montana Government?

- A. Class 1
- B. Class 2
- C. Class 3
- D. Class 3

36. What would be an advantage of no till farming

- A. Less soil erosion
- B. Long tap roots

C. More Organic Matter D. All of the Above

37. How many AUM's will 30 heifers eat in three months? (note a heifer=.7 AUM's)

- A. 21 B. 80
C. 45 D. 63

38. What percentage of utilization should be used on good to excellent range conditions?

- A. 81-100% B. 61-80%
C. 21-40% D. 41-60%

39. Wheat is a _____ type of inflorescence.

- A. Knife B. Spike
C. Panicle D. Particle

40. This type of soil is a very fine textured soil with small particles.

- A. Clay B. Sand
C. Silt D. Loamy Sand

41. Stomata have two primary functions: point of entry for CO₂ and :

- A. Point of entry for water B. Secretion of mucus
C. Allow loss of cell sap D. Transpiration

42. Which soil has slowest infiltration rate?

- A. Clay B. Sand
C. Silt D. Loamy Sand

43. CPR stand for what?

- A. Crop Restoration Period
B. Conservation Reserve Product
C. Cool Roots Process
D. Conservation Reserve Program

44. Soil on average has what percentage of Organic Matter?

- A. 35% B. 5%
C. 20% D. 10%

45. Ergot is what?

- A. Bacterial infection B. Decreaser
C. Fungi D. Type of Crop

46. A very shallow site has a restrictive layer within ____ inches from the surface

- A. 20 Inches B. 15 Inches
C. Less than 10 Inches D. 25 Inches

47. What kind of leaf venation is found in grasses?

- A. Linear
- B. Parallel
- C. Palmate
- D. Pinnate

48. Death Camas is very deadly to sheep.

- A. True
- B. False

49. Corn originates from where?

- A. Europe
- B. Asia
- C. Africa
- D. The Americas

50. Which of the following is not a soil structure?

- A. Blocky
- B. Sandy
- C. Single Grain
- D. Massive

