

2020 Reno County Ag Challenge of Champions

Wednesday, July 22, 2020

Name _____ Age _____

4-H Club/FFA Chapter _____

RULES:

1. A county extension agent or FFA instructor must certify each contestant as a Reno county student.
2. The superintendent and committee of the contest shall be in charge of the contest. They shall have the authority for interpretation of the rules.
3. No contestants will be allowed to have books or notes during the contest.
4. While the contest is in session, there shall be no communication between contestants.

GOOD LUCK!!!

2020 Ag Challenge of Champions Written Test

Multiple Choice: (Circle the letter of the correct answer)

Agricultural/Livestock Industry

- Diseases caused by a virus or bacteria are classed as:
 - physiological
 - morphological
 - nutritional
 - pathogenic**
- Cattle can generally lose from 1 to 5 percent of their weight when transported. This is referred to as:
 - sale weight
 - shipping weight
 - shrinkage**
 - fillback
- The reflex and response that an animal has at birth is:
 - instinct**
 - conditioning
 - intelligence
 - reasoning
- The leg and loin of a lamb are the primary wholesale cuts that come from the:
 - hindsaddle**
 - rack
 - foresaddle
 - chuck
- The swine trait having the highest heritability estimate is:
 - backfat thickness
 - carcass length**
 - birth weight
 - growth rate
- Which of the following is a water-soluble vitamin?
 - potassium
 - panthothenic acid**
 - vitamin A
 - selenium
- Swine are typically identified for registration by the use of:
 - ear tags
 - freeze brand
 - ear notches**
 - tattoos

8. Scrapie is a disease of both sheep and goats that affects the:
- brain**
 - digestive tract
 - skin
 - lungs
9. Which classification of sheep are primarily bred for meat production?
- fine wool
 - medium wool**
 - long wool
 - crossbred wool
10. The release of the egg from the ovary is called:
- fertilization
 - ovulation**
 - parturition
 - reproduction
11. A visual evaluation of the amount of muscle on a hog is best seen by looking at which view of the hog?
- side
 - rear**
 - front
 - top
12. When chromosome pairs are divided in such a manner that each gamete has one of each type of chromosome, the process is called:
- meiosis**
 - mitosis
 - sequencing
 - cell division
13. The method of marketing where cattle are sold by public bidding to the highest bidder is:
- public stockyards
 - contract sales
 - auction markets**
 - terminal markets

Farm Equipment

14. The primary function of a planter is to make the "V" trench. Identify what part of the planter makes the "V" trench?
- metering plates
 - fluted and rippled coulters
 - the double disk openers**
 - covering wheels

15. Oil in the cylinder is usually an indication of a worn:

- a. exhaust valve guide
- b. main bearing
- c. intake valve guide**
- d. head gasket

16. The type of electric motor enclosure that must be used to move grain in a feed bin is:

- a. totally enclosed**
- b. drip proof
- c. splash proof
- d. open enclosure

17. Slag is:

- a. weld waste and impurities that form at the top of the weld bead**
- b. easy to remove; promotes rapid cooling
- c. settles to the root of the weld and provides added strength to the weld
- d. a defect that causes brittleness in the weld

18. Inspecting the grain in the grain tank of a combine, we notice a large number of broken seeds. What can the operator adjust to correct this problem?

- a. slow the combine down (less MPH)
- b. speed up the cylinder
- c. slow the cylinder down**
- d. speed up the fan

19. The intake manifold of the diesel engine allows:

- a. air to enter the cylinder past the intake valve**
- b. fuel and air to enter the cylinder past the intake valve
- c. fuel to enter the cylinder past the intake valve
- d. air to enter the cylinder and exhaust gases to escape

20. Which of the following statements is **NOT** true when describing 3-way electrical switches?

- a. 3-way switches are used in pairs to control a light or receptacle from two locations
- b. 3-way switches have three brass terminals**
- c. there are no "on" or "off" markings on 3-way switches
- d. 3-way switches have three terminals, one black or copper colored and two brass or silver colored

21. A hydrostatic skid steer is capable of turning very sharp due to:

- a. the differential in the drive train
- b. the final drives in the drive train
- c. the locking of hydraulic motors and skidding of tires**
- d. the brake system in the drive train

22. A _____ stores electrical energy in an electrostatic field.

- a. potentiometer
- b. transistor
- c. rheostat
- d. capacitor**

23. At top dead center of the compression stroke of a small gas engine:

- a. the intake valve is closed and the exhaust valve is open
- b. the exhaust valve is closed and the intake valve is open
- c. both intake and exhaust valves are open
- d. **both intake and exhaust valves are closed**

24. In welding, this procedure will usually decrease penetration, assuming all other factors remain constant.

- a. increasing the amperage
- b. using a small diameter electrode
- c. slowing the rate of forward travel
- d. **decreasing electrode angle**

25. The weave bead width should be _____ the diameter of the electrode being used.

- a. the same as
- b. no wider than 2-3 times
- c. no wider than 4 times
- d. **no wider than 6 times**

Farm Management

26. When local basis increases, it is an indication that:

- a. futures prices are decreasing
- b. **local demand is decreasing**
- c. local supply is short
- d. local price is higher than the futures price

27. Working capital is a measure of available:

- a. cash
- b. **current assets minus liabilities**
- c. accounts receivables
- d. available short term credit

28. The interest paid on a mortgage is considered:

- a. liability
- b. a variable cost
- c. total cost
- d. **a fixed cost**

29. A farmer rents an adjacent 160 acres of cropland for \$110 per acre to operate with his current 800 acres and existing equipment. The effect on the farmer's costs will be:

- a. to increase fixed costs per acre
- b. **to decrease fixed costs per acre**
- c. to increase variable costs per acre
- d. to decrease variable costs per acre

30. Which of the following is **NOT** included as a gross income under the accrual system?
- value of crops produced
 - increase in value of livestock purchased
 - value of feed fed to livestock**
 - government payments and dividends
31. A cash flow budget projected for next year can provide information on:
- projected borrowing requirements and repayment ability**
 - return to the farm operator's labor and management
 - net worth of the farm business
 - rate of return on the farm investment
32. If a farmer discovered that he had 1,000 more bushels of corn stored than he had estimated when he figured his net farm income for the year, this would:
- raise his actual cash net farm income
 - lower his actual cash net farm income
 - raise his actual accrual net farm income**
 - lower his actual accrual net farm income
33. A corn producer decides to store his soybeans in the local elevator for 4 months. The price at harvest is \$4.50 per bushel and the elevator charges 2 cents per bushel per month for storage plus a 5 cents per bushel handling charge. He has 4,000 bushels to sell and must borrow \$18,000 at 6% annual interest while he stores the corn. What price must he receive for his corn to break even and cover his storage and opportunity costs?
- \$4.58
 - \$4.63
 - \$4.72**
 - \$4.77
34. Chris purchased a group of weaner pigs weighing 12 pounds each and sold them weighing 278 pounds after feeding them for 160 days. Each pig ate 750 pounds of feed during the feeding period. Average daily gain for each pig in the group (gain per day) during the feeding period was:
- 2.95 pounds/day
 - 1.92 pounds/day
 - 1.66 pounds/day**
 - 0.285 pounds/day
35. A farmer purchases 700-pound feeder steers for \$1.80 per pound and plans to sell the steers at 1,300 pounds. The farmer estimates the total cost of gain to be \$0.91 per pound. The nearest breakeven price when the steers are sold at 1,300 pounds is:
- \$1.25/pound
 - \$1.32/pound
 - \$1.39/pound**
 - \$1.43/pound

36. A farmer has total assets of \$500,000 of which land is \$300,000. The farmer's debt to equity ratio is 0.6. What will the farmer's debt to equity ratio be if the land value increases by 10%?
- a. 0.45
 - b. 0.47
 - c. 0.53
 - d. **0.55**
37. Corn has an expected yield of 160 bushels per acre and has a production cost of \$375 per acre. Current market prices are \$5 per bushel for corn and \$13 per bushel for soybeans. Soybeans can be raised at a production cost of \$250 per acre. At what breakeven yield per acre would soybeans generate the same net return per acre as dryland corn?
- a. 41.9 bushels
 - b. 45.2 bushels
 - c. **51.9 bushels**
 - d. 63.3 bushels
38. How many pounds of 48% protein supplement must be mixed with 11% protein wheat to make a ton of 16% protein feed?
- a. **270 pounds**
 - b. 350 pounds
 - c. 400 pounds
 - d. 550 pounds

General Agriculture

39. The Kansas Department of Agriculture is located in:

- a. Hutchinson
- b. **Manhattan**
- c. Salina
- d. Wichita

40. The Kansas Secretary of Agriculture is:

- a. **Mike Beam**
- b. Kurt Dillon
- c. Jackie McClaskey
- d. Sonny Perdue

41. The United States Secretary of Agriculture is:

- a. Mike Beam
- b. Mary Kane
- c. Jackie McClaskey
- d. **Sonny Perdue**

42. In 2017, Kansas ranked _____ in total agricultural exports.

- a. 1st
- b. 2nd
- c. **7th**
- d. 9th

43. U.S. consumers spend _____ percent on their disposable income on food each year.
- a. 5
 - b. 10**
 - c. 15
 - d. 20
44. Today, each U.S. farmer produces food and fiber for _____ people annual in the United States and abroad.
- a. 128
 - b. 148
 - c. 168**
 - d. 188
45. About _____ percent of all U.S. agricultural products are exported yearly.
- a. 14
 - b. 24**
 - c. 34
 - d. 44
46. The U.S. produces _____ of corn in the world.
- a. 11.9%
 - b. 21.9%
 - c. 31.9%
 - d. 41.9%**
47. The average American consumes _____ gallons of fluid milk each year.
- a. 11 gallons
 - b. 21 gallons**
 - c. 31 gallons
 - d. 41 gallons
48. Today, farmers and ranchers receive only _____ cents of every retail dollar spent on food that is eaten at home and away from home compared to receiving 31 cents in 1980.
- a. 9
 - b. 19**
 - c. 29
 - d. 39
49. The average farm size in Kansas is:
- a. 507 acres
 - b. 607 acres
 - c. 707 acres**
 - d. 807 acres

50. The average age of a Kansas farmer is:

- a. **57 years old**
- b. 67 years old
- c. 77 years old
- d. 87 years old