

# 2022 Reno County Ag Challenge of Champions

Wednesday, July 20, 2022

Name \_\_\_\_\_ Age \_\_\_\_\_

4-H Club/FFA Chapter \_\_\_\_\_

E-Mail Address \_\_\_\_\_

## **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 oversee 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!!!**

# 2022 Ag Challenge of Champions Written Test

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

## Agricultural/Livestock Industry

1. \_\_\_\_\_ is a measure of the degree of difference between the offspring of a specific bull and the offspring of the average bull of the breed in the trait being measured.
  - a. EPD
  - b. OSB
  - c. MPV
  - d. SPF
  
2. How well an animal likes or accepts a feed is referred to as the:
  - a. digestibility
  - b. composition
  - c. palatability
  - d. balance
  
3. The class of sheep that are evaluated on the quality of their fleece than other sheep are known as:
  - a. Long-wool breeds
  - b. Medium-wool breeds
  - c. Fine-wool breeds
  - d. Mutton breeds
  
4. An animal's central nervous system includes the brain and:
  - a. spinal cord
  - b. autonomic nerves
  - c. somatic nerves
  - d. effector organ
  
5. Which part of the ruminant stomach is recognized as the true stomach?
  - a. abomasum
  - b. reticulum
  - c. rumen
  - d. omasum
  
6. Subcutaneous injections are given:
  - a. under the skin
  - b. in the muscle
  - c. orally
  - d. in the ear
  
7. The average daily gain for growing cattle on full feed is:
  - a. 1 lb/day
  - b. 3 lbs/day
  - c. 5 lbs/day
  - d. 10 lbs/day

8. Estrus in cattle usually occurs every:
- 12 days
  - 21 days
  - 30 days
  - 60 days
9. Fats and oils provide \_\_\_\_\_ times more energy than do carbohydrates.
- 2.25
  - 5.5
  - 10
  - 100
10. Which of the following minerals is a trace mineral?
- potassium
  - calcium
  - sodium
  - selenium
11. Feed that is provided to young animals as an extra ration and is fed in an area that is inaccessible to the mothers is called a:
- creep feed
  - maintenance feed
  - lactation ration
  - finishing ration
12. An impairment that affects the performance of the vital life functions.
- disease
  - protozoa
  - parasite
  - metabolism
13. The record of the ancestors of a particular animal is recorded in its:
- genetic map
  - performance record
  - phenotype
  - pedigree
14. The total protein contained in a feed is \_\_\_\_\_ protein.
- non-digestible
  - crude
  - plant
  - digestible
15. Swine are typically identified for registration by the use of:
- ear tags
  - freeze brand
  - ear notches
  - tattoos

16. In swine, a male that has been castrated before reaching sexual maturity is called a:

- a. wether
- b. stag
- c. boar
- d. barrow

17. The process of taking food nutrients through the intestinal wall is:

- a. regurgitation
- b. mastication
- c. absorption
- d. assimilation

18. The genetic makeup of an animal is called its:

- a. phenotype
- b. dominance
- c. genotype
- d. recessiveness

19. Organic compounds, which are the building blocks in the formation of proteins, are:

- a. glycogens
- b. chromosomes
- c. fat-soluble vitamins
- d. amino acids

20. A nutritional problem in cattle is characterized by swelling of the tissue that attaches the hoof to the foot and lameness of the animal.

- a. colic
- b. founder
- c. anemia
- d. bloat

21. Which hormone is responsible for the masculine appearance in animals?

- a. testosterone
- b. progesterone
- c. masterone
- d. estrogen

22. \_\_\_\_\_ are growths on the skin of cattle caused by a virus.

- a. trichomoniasis
- b. ringworms
- c. edemas
- d. warts

23. The secretion and production of milk in sheep, cattle and swine is known as:

- a. anestrous
- b. lactation
- c. fertilization
- d. ovulation

24. The first milk produced by a cow after giving birth is known as:

- a. lactose
- b. buttermilk
- c. colostrum
- d. skim milk

25. Which of the following feeds is highest in total digestible nutrients (TDN)?

- a. corn
- b. sudangrass
- c. silage
- d. coastal Bermuda

### **Farm Equipment**

26. 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

27. New valves must be \_\_\_\_\_ prior to installation to assure a perfect seal.

- a. lapped
- b. sealed
- c. deglazed
- d. lubricated

28. What can cause a W bottom seed trench when planting corn?

- a. the double disk openers need adjusting
- b. the double disk openers are too small in diameter
- c. the double disk openers are not touching
- d. all of the above

29. Which of these is NOT a part of the cleaning unit on a combine?

- a. fan
- b. chaffer
- c. beater
- d. sieve

30. Inspecting the grain in the grain tank, we noticed 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

31. The basic rule for setting the reel speed of a combine is:
- reel speed is equal to ground speed
  - reel speed is 50% faster than ground speed
  - reel speed is 25% faster than ground speed
  - reel speed is 25% slower than ground speed
32. The final cleaning of grain in a combine is accomplished at the:
- sieve
  - chaffer
  - finger bar
  - chaffer extension
33. The proper flow pattern for grain in a combine is:
- cutting, feeding, threshing, separating and handling
  - cutting, threshing, feeding, separating and handling
  - cutting, feeding, threshing, separating, cleaning and handling
  - cutting, feeding, threshing, cleaning, separating and handling
34. A milky condition of the hydraulic system of a skid steer loader indicates:
- air in the system
  - cross contamination
  - water in the oil
  - foaming oil
35. A hydrostatic skid steer loader is capable of turning very sharp due to:
- the differential in the drive train
  - the final drives in the drive train
  - the locking of hydraulic motors and skidding of tires
  - the brake system in the drive train
36. Many of the smaller diesel engines are naturally aspirated. This means that the air is forced into the cylinder by:
- turbocharger
  - atmospheric pressure
  - roots blower
  - supercharger
37. At top dead center of the compression stroke of a diesel engine, the
- intake valve is closed, and the exhaust valve is closed
  - intake valve is closed, and the exhaust valve is open
  - intake valve and exhaust valve are both open
  - valve positioning could vary with the engine type/manufacture
38. A shear bolt is used for:
- determines how much horsepower can be used on this machine
  - helps increase efficiency of the machine
  - prevent further damage to the machine
  - determines the size of cut

39. How many square feet are in one acre?

- a. 435
- b. 4,356
- c. 5,280
- d. 43,560

40. The crop processor used on forage harvester choppers does what?

- a. dries the crop
- b. identifies the crop size
- c. cracks individual corn kernels
- d. none of the above

41. A crop planter that uses vacuum to operate the metering unit is equipped with a gauge. What does the gauge read?

- a. psi
- b. psig
- c. inches of water
- d. vacuum pressure

42. Seed size for a crop planter determines the following. Identify the one that does NOT belong.

- a. vacuum setting
- b. finger pressure adjustment
- c. planter speed (MPH)
- d. size of seed plate used

43. The primary function of a crop planter is... identify which one does NOT belong.

- a. make the seed trench
- b. till the seed bed area
- c. cover the seed trench
- d. firm the seedbed
- e. meter the seed

44. The optimum moisture for baling round bales is:

- a. 6-9%
- b. 9-12%
- c. 12-15%
- d. 15-18%

45. Which of the following is the major disadvantage to baling round bales at too high of moisture level?

- a. mold growth and spoilage
- b. the bales will be too heavy to move
- c. cows will drink less water
- d. it will take more horsepower

46. Which of the following is NOT an advantage of using net wrap instead of twine?
- a. bales are wrapped quicker
  - b. bales will shed more water
  - c. net wrapped bales usually hold together better
  - d. the cost per bale
47. Which of the following is an advantage of large round baling over large square baling?
- a. round bales can roll down a hill
  - b. round bales stack tighter in storage
  - c. round baling can usually be done at a higher moisture level
  - d. none of the above
48. This component responds to changes in moisture in a grain drying system.
- a. thermostat
  - b. humidistat
  - c. rheostat
  - d. relay
49. A \_\_\_\_\_ switch is used to shut off an auger when the grain bin is full.
- a. limit
  - b. overload
  - c. solenoid
  - d. overflow
50. 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

### **Farm Management**

51. An opportunity cost is what you:
- a. pay for an opportunity
  - b. spend on fixed inputs
  - c. spend to produce one more unit of output
  - d. give up (its value) in order to do something
52. Principle payments paid:
- a. are listed as income on an income statement
  - b. are listed as expenses on an income statement
  - c. do not show up at all on an income statement
  - d. are current liabilities on a balance sheet



53. Liquidity is a financial term that relates to how easy it is for a firm to:

- a. terminate all business operations
- b. refinance existing loans
- c. borrow additional money
- d. convert assets into cash

54. Keeping track of expenses is important for:

- a. management purposes
- b. tax purposes
- c. a & b
- d. none of the above

55. The amount of a patronage refund received by a farmer from a cooperative depends on the:

- a. farmer's business volume in total
- b. farmer's business volume with the cooperative
- c. number of cooperative shares of stock owned by the farmer
- d. farmer's level of accounts payable to the cooperative

56. A tax deductible expense:

- a. reduces taxable income
- b. increases taxable income
- c. has no impact on taxable income
- d. increases taxes owed

57. A current asset is one that:

- a. is currently being used by a business firm
- b. can be converted into cash fairly easily within one year
- c. has been paid for by the business owner
- d. has been purchased within the past year by the business owner

58. What is the general name of federal benefits paid to people who retire?

- a. Welfare
- b. Medicare
- c. Social Security
- d. Affordable Care Act

59. What is another term for interest expense owed?

- a. accrued interest expense
- b. a current asset
- c. a long-term liability
- d. a non-current liability

60. If a corn farmer has total fixed costs per acre of \$200, variable costs of \$3 per bushel and the price of corn is \$4 per bushel, what is the farmer's breakeven yield per acre (in bushels)?

- a. 50.00
- b. 66.67
- c. 28.57
- d. 200.00

61. The main objective of income tax management is to:

- a. get the final line on the tax form to zero
- b. get into the lowest tax bracket
- c. maximize after-tax income
- d. minimize the tax obligation

62. Liability insurance is used to protect against:

- a. crop loss
- b. hail damage
- c. legal action
- d. livestock death loss

63. One of the most important things for a young farmer to consider when beginning to farm is:

- a. purchasing a farm
- b. purchasing new or used equipment
- c. establishing some goals
- d. limited payment life policy

64. An advantage of a family corporation is:

- a. special tax benefits in pension funds and profit-sharing trusts
- b. unlimited liability of share holders
- c. convenience of forming the corporation
- d. a method to acquire other corporations through tax free exchange of stock

65. The two components of the annual cost of owning a capital item are:

- a. interest and depreciation
- b. wear and tear
- c. gasoline and oil
- d. heat and light

66. A farmer purchases 550-pound feeder steers for \$1.20 per pound and plans to sell the steers at 750 pounds. The farmer estimates the total cost of gain to be 65 cents per pound. The nearest breakdown price when the steers are sold at 750 pounds is:

- a. \$79.14/cwt.
- b. \$81.25/cwt.
- c. \$92.50/cwt.
- d. \$105.33/cwt.
- e. none of the above

67. Corn has an expected yield of 155 bushels per acre and production cost of \$300.00 per acre. Expected market prices are \$5.00 per bushel for corn and \$12.00 per bushel for soybeans. Soybeans can be raised at a production cost of \$150 per acre. At what breakdown yield per acre would soybeans generate the same net return per acre as corn?

- a. 34.3 bushels
- b. 36.4 bushels
- c. 45.3 bushels
- d. 52.1 bushels
- e. none of the above

68. A soybean producer decides to store his soybeans in the local elevator for four months. The price at harvest is \$5 per bushel and the elevator charges 2 cents per bushel per month for storage plus a 5 cents per bushel handling charge. He has 5,000 bushels to sell and must borrow \$25,000 at 9% annual interest while he stores the soybeans. What price must he receive for his soybeans to break even and cover his storage and opportunity costs?
- a. \$5.07
  - b. \$5.13
  - c. \$5.23
  - d. \$5.28
  - e. none of the above
69. How many pounds of 48% protein soybean meal must be mixed with 10% protein wheat to make a ton of 16% protein feed?
- a. 316 pounds
  - b. 400 pounds
  - c. 439 pounds
  - d. 487 pounds
  - e. none of the above
70. If grain sorghum has 97% of the feeding value of corn on a pound-for-pound basis and corn is selling for \$5.25 per bushel, then a hundredweight of grain sorghum is worth:
- a. \$5.09
  - b. \$7.73
  - c. \$9.09
  - d. \$9.37
  - e. none of the above
71. The Pig Palace Custom Feedlot purchased a group of weaner pigs weighing 12 pounds each and sold them weighing 270 pounds after feeding them for 175 days. Each pig ate 760 pounds of feed during the feeding period. Average daily gain for each pig in the group during the feeding period was:
- a. 1.47 pounds per day
  - b. 1.67 pounds per day
  - c. 2.08 pounds per day
  - d. 3.25 pounds per day
  - e. none of the above
72. A feedlot operator purchases a pen of 115 feeder steers with an average weight of 780 pounds and sells them at an average weight of 1280 pounds. Total feed cost for the pen is \$45,500. Feed cost per pound of gain is equal to:
- a. \$0.648
  - b. \$0.720
  - c. \$0.791
  - d. \$0.910
  - e. none of the above

73. A producer sells 8 feeder steers for \$124/cwt. The average weight per steer is 752 pounds. There is a 2% sales commission and yardage fees of \$3.10 per head. The net amount received for the pen of steers would be:
- a. \$6,027.60
  - b. \$6,018.36
  - c. \$7,049.62
  - d. \$7,285.84
  - e. none of the above
74. A farmer sold his 5000-bushel corn crop at several different times during the year. He sold 1000 bushels at \$2.00, 2000 bushels at \$3.00 and 2000 bushels at \$4.00. What was his average price per bushel?
- a. \$2.00
  - b. \$2.67
  - c. \$3.00
  - d. \$3.20
  - e. none of the above
75. Farmer Jones has fewer current assets than current liabilities. Her current ratio is:
- a. negative.
  - b. zero.
  - c. between 0 and 1.
  - d. greater than 1.
  - e. none of the above

### **General Agriculture**

76. Agriculture and related industries provide jobs for \_\_\_\_\_ of the total U.S. workforce.
- a. 9%
  - b. 10%
  - c. 12%
  - d. 15%
77. \_\_\_\_\_ makes up the highest amount of cash receipts for farming totaling \$92.09 billion.
- a. Feed crops
  - b. Oil crops
  - c. Meat animals
  - d. Dairy products
78. Today, each farmer produces food and fiber for \_\_\_\_\_ people annually in the United States and abroad.
- a. 150
  - b. 154
  - c. 166
  - d. 170

79. \_\_\_\_\_ of farms are family owned.

- a. 93%
- b. 95%
- c. 97%
- d. 98%

80. The top 5 foreign customers that U.S. agricultural products are exported to are:

- a. EU-28, Japan, Canada, South Korea, China
- b. China, Canada, Mexico, Japan, EU-28
- c. Canada, Mexico, Japan, EU-28, Hong Kong
- d. EU-28, China, Mexico, South Korea, Israel

81. The top U.S. ag imports totaling \$12.8 billion is:

- a. fresh/processed vegetables
- b. fresh/processed fruits
- c. coffee & cocoa
- d. grains and feeds

82. Agriculture programs equal what percentage of the USDA budget?

- a. 9%
- b. 10%
- c. 11%
- d. 15%

83. Which U.S. president established the USDA?

- a. Abraham Lincoln
- b. George Washington
- c. Theodore Roosevelt
- d. Thomas Jefferson

84. \_\_\_\_\_ is the current U.S. Secretary of Agriculture.

- a. Mike Beam
- b. Jackie McClaskey
- c. Sonny Perdue
- d. Tom Vilsack

85. \_\_\_\_\_ is the current Kansas Secretary of Agriculture

- a. Mike Beam
- b. Jackie McClaskey
- c. Sonny Perdue
- d. Tom Vilsack

86. Farm and ranch families make up less than \_\_\_\_\_ of the U.S. population.

- a. 0.5%
- b. 0.75%
- c. 1%
- d. 2%

87. U.S. consumers spend just \_\_\_\_\_ of their disposable income on food each year.
- a. 8%
  - b. 9%
  - c. 10%
  - d. 15%
88. The top U.S. export is:
- a. soybeans
  - b. beef
  - c. dairy products
  - d. corn
89. \_\_\_\_\_ and \_\_\_\_\_ are the United States' largest trading partners. Together, they account for 31% of all U.S. agricultural exports.
- a. China, Mexico
  - b. Canada, Japan
  - c. China, Canada
  - d. China, Japan
90. The average age of principal farm operators in Kansas has been steadily increasing over the past three decades and is now \_\_\_\_\_ years old.
- a. 55
  - b. 58
  - c. 60
  - d. 65
91. Farmers and ranchers receive only \_\_\_\_\_ cents of every retail dollar spent on food that is eaten at home and away from home.
- a. 11
  - b. 19
  - c. 25
  - d. 31
92. Since 1982 the erosion rate by water on U.S. croplands has been reduced by more than \_\_\_\_\_ percent.
- a. 10%
  - b. 20%
  - c. 30%
  - d. 40%
93. U.S. consumers spend just \_\_\_\_\_ percent of their disposable income on food each year, while those in other countries spend much more.
- a. 6%
  - b. 10%
  - c. 16%
  - d. 20%

94. The Kansas Department of Agriculture is in:

- a. Hays
- b. Hutchinson
- c. Manhattan
- d. Salina

95. In 2018, Kansas ranked 1<sup>st</sup> as a state in total U.S. production in all areas EXCEPT:

- a. All Wheat
- b. Cattle on Feed
- c. Sorghum for Grain
- d. Sorghum for Silage

96. In 2016, Kansas ranked \_\_\_\_\_ in total agricultural exports.

- a. 1<sup>st</sup>
- b. 2<sup>nd</sup>
- c. 6<sup>th</sup>
- d. 9<sup>th</sup>

97. According to the 2012 census, which Kansas county accounted for the most farms?

- a. Butler
- b. Dickinson
- c. Reno
- d. Sedgwick

98. In 2017, which grain crop in Kansas accounted for the most farm value (dollars)?

- a. corn
- b. oats
- c. sorghum
- d. wheat

99. In 2017, which Kansas county produced the most bushels of wheat?

- a. Kingman
- b. McPherson
- c. Reno
- d. Sumner

100. In 2017, what was the average size of farms in Kansas?

- a. 570 acres
- b. 670 acres
- c. 770 acres
- d. 870 acres