

2021 Reno County Ag Challenge of Champions

Wednesday, July 21, 2021

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!!!

2021 Ag Challenge of Champions Written Test

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

Agricultural/Livestock Industry

- What is the average number of days in the length of gestation for sheep?
 - 114
 - 121
 - 148**
 - 162
- Rapid fermentation in the rumen causing too much gas to be produced is referred to as:
 - bloat**
 - brisket disease
 - enterotoxemia
 - founder
- The science in livestock production that studies the way in which traits of parents are passed on to the offspring is:
 - genetics**
 - heterosis
 - hybrid vigor
 - meiosis
- Porcine somatotropin (pST) is a protein produced in which gland of the pig?
 - endocrine
 - lymph
 - pituitary**
 - reproductive
- Shrinkage of cattle as they are moved to market is NOT affected by:
 - length of the fill back period
 - market price**
 - sex of the animal
 - weather
- Which species of livestock descended from two wild stocks known as "Sus scrofa" and "Sus vittatus"?
 - cattle
 - goats
 - sheep
 - swine**
- Diseases present in the animal's body at levels too low to cause visible effects are:
 - chemobiotics
 - probiosis
 - subclinical**
 - subtherapeutic

8. Brisket disease affects the _____ in cattle?
- brain
 - heart**
 - lungs
 - stomach
9. Sheep have the highest heritability estimate for which of the following traits?
- conformation score
 - fat thickness
 - feed efficiency
 - staple length**
10. Which of the following breeds of beef cattle has the heaviest birth weight for calves of either sex for performance testing?
- Angus
 - Charolais**
 - Hereford
 - Limousin
11. A barrow that grades U.S. Number 2 and is thick muscled will have a back fat measurement of:
- less than 1.00 inch
 - 1.00 – 1.24 inches
 - 1.25 – 1.49 inches**
 - 1.50 – 1.74 inches
12. Which animal by-product derived from the pancreas is used in the treatment of diabetes?
- cortisone
 - epinephrine
 - heparin
 - insulin**
13. Which of the following states has the highest production of sheep and lambs?
- Ohio
 - South Dakota
 - Texas**
 - Wyoming
14. The biggest problem of raising sheep is the loss caused by:
- blue tongue
 - external parasites
 - internal parasites**
 - overeating disease
15. Which part of the ruminant stomach is recognized as the true stomach?
- abomasum**
 - omasum
 - reticulum
 - rumen

16. A chronic degenerative disease that affects the central nervous system of cattle (also called "Mad Cow Disease") is:

- a. Bovine Respiratory Syncytial Virus
- b. Bovine Spongiform Encephalopathy**
- c. Infectious Bovine Rhinotracheitis
- d. Keratoconjunctivitis

17. The age at which an animal reaches sexual maturity is:

- a. adolescence
- b. heterosis
- c. parturition
- d. puberty**

18. Calves younger than three months of age sold for slaughter are:

- a. baby beef
- b. cabritos
- c. kids
- d. veal**

19. The total protein contained in a feed is _____ protein.

- a. crude**
- b. digestible
- c. non-digestible
- d. plant

20. A maintenance ration for beef cattle is primarily:

- a. carbohydrates
- b. concentrates
- c. proteins
- d. roughages**

21. The normal body temperature of sheep and swine is:

- a. below 97 degrees F
- b. 98.6 degrees F
- c. 100 degrees F
- d. above 102 degrees F**

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

- a. adrenaline
- b. estrogen
- c. progesterone
- d. testosterone**

23. Ruminant animals can synthesize _____ of the 22 required amino acids.

- a. 0
- b. 10
- c. 18
- d. **22**

24. The estrous cycle in swine occurs:

- a. weekly
- b. bi-monthly
- c. **every 21 days**
- d. twice per year

25. The most common parasites affecting beef cattle are:

- a. **flies**
- b. liver flukes
- c. roundworms
- d. ticks

Farm Equipment

26. The difference in angle between the valve face and the valve seat is called the:

- a. **interference angle**
- b. valve differential angle
- c. clearance angle
- d. valve guide angle

27. Bent valve stems and push rods are typically caused by:

- a. excessive tappet clearance
- b. **lack of tappet clearance**
- c. cylinder pre-ignition
- d. delayed ignition

28. What is the row length of $1/1000^{\text{th}}$ of an acre with a row spacing of 22 inches? HINT: 43,560 square feet/acre

- a. **23.76 feet**
- b. 17.42 feet
- c. 1.833 feet
- d. 2.5 feet

29. Corn seed should NOT be planted deeper than _____ inches.

- a. 1.0 inch
- b. **2.0 inches**
- c. 3.0 inches
- d. 4.0 inches

30. What is the earliest soil temperature that corn and soybean seeds will germinate quickly?
- 60 to 65 degrees F
 - 50 to 55 degrees F**
 - 40 to 45 degrees F
 - 35 to 40 degrees F
31. The chemical reaction which turns concrete from a plastic to a hardened state is known as:
- heat of hydration**
 - thermal bonding
 - hydrodynamics
 - polymer bonding
32. A properly soldered copper joint, using lead-free solder, is how strong when compared to the pipe itself?
- stronger
 - equal**
 - weaker
 - twice as strong
33. Acetylene cylinders are packed with a porous material saturated with _____, used to absorb a large quantity of acetylene under pressure.
- acetone**
 - benzene
 - alcohol
 - kerosene
34. When piercing plate or pipe, approach the material surface at a _____ angle.
- 45 degrees**
 - 90 degrees
 - 0 degrees
 - right
35. Adjust the tool rest of a stationary grinder within _____ of the wheel.
- 7/16"
 - 5/16"
 - 3/16"
 - 1/16"**
36. The windings of three-phase induction motors are located approximately _____ degrees out of phase from each other.
- 90
 - 120**
 - 180
 - 240

37. The stationary electromagnet in an electric motor is called a:
- stator**
 - rotor
 - armature
 - none of the above
38. The type of motor that would be found operating a timeclock?
- direct current
 - synchronous**
 - induction
 - three phase
39. In a 120-volt circuit, the grounded conductors are connected to:
- the brass terminals on outlets
 - the brass terminals on switches
 - the silver terminals on outlets**
 - the green terminals on outlets
40. What size circuit breaker should be used to protect a copper wire, type NM 12/2 with ground.
- 50 amperes
 - 40 amperes
 - 30 amperes
 - 20 amperes**
41. The wire through which electric current travels is called a:
- traveler
 - cable
 - conductor**
 - transmitter
42. White wires used as an undergrounded conductor must be:
- connected to black wires
 - connected to fixtures
 - stripped of all insulation
 - taped or painted black**
43. _____ is the point at which the piston is closest to the cylinder head.
- top dead center**
 - bottom dead center
 - stroke
 - crankpin
44. In a two-stroke cycle engine, the crankshaft turns _____ revolution(s) for each complete operating cycle.
- one**
 - two
 - three
 - four

45. The bottom ring of a set of piston rings is called the:
- a. compression ring
 - b. wiper ring
 - c. **oil ring**
 - d. channel ring
46. The most common fuel used in small engines is:
- a. **gasoline**
 - b. diesel
 - c. propane
 - d. alcohol
47. In the GTAW process, the non-consumable electrode is in the form of a:
- a. 1/8 inch by 18-inch electrode
 - b. 3/64-inch flux coated brass rod
 - c. continuous wire
 - d. **tungsten electrode**
48. The proportion of time that a welder can operate without overheating is known as its:
- a. AC/DC Rating
 - b. AWS Cycle Classification
 - c. **Duty Cycle**
 - d. Voltage Descent
49. Shielded metal arc welding is also called:
- a. brazing
 - b. electrode welding
 - c. MIG welding
 - d. **stick welding**
50. Which of the following is NOT an acceptable clothing material to be worn while welding?
- a. cotton
 - b. **elastane**
 - c. wool
 - d. leather

Farm Management

51. A(n) _____ is the financial record that reflects the profitability of the business over an accounting period, usually one year.
- a. net worth statement
 - b. charts of accounts
 - c. **income statement**
 - d. check book

52. Items that have been produced to be sold or have been purchased for resale and/or supplies on hand that will be used on the farm during the upcoming year or accounting period are said to be called?
- current assets**
 - non-current assets
 - timely assets
 - non-timely assets
53. Smith Brothers Farm has current assets of \$400,000 and current liabilities of \$200,000. What would be the current net worth ratio?
- 2:1**
 - 1:2
 - 1:1
 - 1:0
54. _____ include projections of income and expenses for all or part of the business.
- Budgets**
 - Enterprises
 - Goals
 - Objectives
55. If you need to figure out when you will have cash available and when you will not, you need to develop a _____ for the year.
- cash flow summary**
 - enterprise budget
 - income statement
 - net worth statement
56. The principle of _____ states that if one in the production of a commodity is increased while all other inputs are held fixed, a point will eventually be reached at which additions of the input yield progressively smaller increases in output.
- declining output
 - diminishing return**
 - maximizing profit
 - net income
57. You place \$1,000 in a financial instrument that guarantees a 6% return compounded annually. The future value factor for 5 years is 1.3382. How much would you have in your account at the end of the period, assuming you do not withdraw any of the money?
- \$1,215.89
 - \$2,158.90
 - \$1,338.20**
 - not enough information
58. Depreciable farm property must have a useful life of?
- at least one year
 - more than one year**
 - more than five years
 - more than ten years

59. This method of accounting records all transactions when the payment is made for a good or service or when payment is received for a good or service no matter when the good or service was produced or when the good or service was used.
- accrual method
 - estimation method
 - cash method**
 - finance method
60. What does MACRS stand for?
- Modified Accelerated Cost Recovery System**
 - Modified Appreciated Consumption Rating System
 - Manufactured Approved Car Rating System
 - Modified Agricultural Crop Resource System
61. The MACRS property class for general purpose buildings such as machine sheds and hay barns have a class rating of?
- 7-year
 - 10-year
 - 15-year
 - 20-year**
62. If you purchased a combine for \$158,000 and if \$108,000 of section 179 was taken into account, what would be the basis to figure the depreciation remaining?
- \$25,000
 - \$50,000**
 - \$100,000
 - \$266,000
63. _____ gives you protection against financial loss if property is damaged, destroyed, or stolen.
- Life insurance
 - Crop insurance
 - Property insurance**
 - Liability insurance
64. In most cases liability depends upon _____, if someone is injured on a farmer or rancher's land it does NOT make the farmer or rancher liable.
- the law
 - insurance
 - ownership
 - negligence**
65. The farmer and rancher have the right to use reasonable force to remove _____ from their property and are NOT liable for hidden dangers on the land.
- salesmen
 - hazards
 - USDA inspectors
 - trespassers**

66. An independent contractor is a person or organization performing a job without control from the employer. The employer only determines the results. An example of an independent contractor would be:
- a. **custom harvester**
 - b. chemical representative
 - c. tractor technician
 - d. cattle buyer
67. If BNI Farms can produce either 100 bushels of corn OR 120 pounds of cotton on a straight-line possible production frontier, what is the opportunity cost of producing 4 bushels of corn.
- a. 0.83 pounds of cotton
 - b. 1.2 pounds of cotton
 - c. 4.0 pounds of cotton
 - d. **4.8 pounds of cotton**
68. A projection of all income and expenses associated with growing an acre of a particular crop would be called:
- a. a partial budget
 - b. **an enterprise budget**
 - c. a whole farm budget
 - d. an income statement
69. The corn futures contract closed at \$2.77 per bushel with a local basis of \$0.21. What was the price at the local cash market?
- a. **\$2.56**
 - b. \$2.66
 - c. \$2.77
 - d. \$2.98
70. In what type of business organization does the owner assume all liabilities?
- a. S corporation
 - b. **sole proprietorship**
 - c. C corporation
 - d. partnership
71. An asset's cost minus the asset's accumulated depreciation = the asset's:
- a. basis
 - b. **book value**
 - c. market value
 - d. net worth
72. A business must sell off all of its assets to cover its debt. If the assets were sold at market value and they were more than the total liabilities, the measure of this ability would be called?
- a. **solvency**
 - b. liquidity
 - c. equity
 - d. sedentary

73. The variable cost of production on MHR Ranch was \$775 per acre when there was 550 acres in production. When the acreage increased to 750 acres the cost per acre decreased to \$685. This is an example of:
- a. marginal cost
 - b. economy of size**
 - c. marginal gain
 - d. economy of scale
74. Wolf Creek Farms has the option to produce 70 bushels of soybeans per acre at a variable cost of \$72.30 and a fixed cost of \$60.15 per acre and to sell the commodity for \$2.32 a bushel. Alternatively, Wolf Creek Farms could produce corn at a variable cost of \$102.12 and a fixed cost of \$43.20 per acre and sell the commodity for \$1.56 per bushel. How many bushels per acre would Wolf Creek Farms have to produce for corn to be as profitable as soybeans? (Round to the nearest acre)
- a. 98 bushels
 - b. 104 bushels
 - c. 112 bushels
 - d. 123 bushels**
75. Which of the following would cause an increase in the price of a commodity?
- a. increase in supply and a decrease in demand
 - b. decrease in supply with no change in demand**
 - c. decrease in demand with no change in supply
 - d. increase in supply and no change in demand

General Agriculture

76. The Kansas Department of Agriculture is located in:
- a. Hutchinson
 - b. Manhattan**
 - c. Salina
 - d. Wichita
77. The Kansas Secretary of Agriculture is:
- a. Mike Beam**
 - b. Kurt Dillon
 - c. Jackie McClaskey
 - d. Tom Vilsack
78. The United States Secretary of Agriculture is:
- a. Mike Beam
 - b. Mary Kane
 - c. Jackie McClaskey
 - d. Tom Vilsack**

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

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

80. U.S. consumers spend _____ percent on their disposable income on food each year.

- a. 5
- b. **10**
- c. 15
- d. 20

81. 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

82. About _____ percent of all U.S. agricultural products are exported yearly.

- a. 14
- b. **24**
- c. 34
- d. 44

83. The U.S. produces _____ of corn in the world.

- a. 11.9%
- b. 21.9%
- c. 31.9%
- d. **41.9%**

84. The average American consumes _____ gallons of fluid milk each year.

- a. 11 gallons
- b. **21 gallons**
- c. 31 gallons
- d. 41 gallons

85. 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

86. The average farm size in Kansas is:

- a. 507 acres
- b. 607 acres
- c. **707 acres**
- d. 807 acres

87. The average age of a Kansas farmer is:

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

88. The top agriculture commodity for the United States is:

- a. broilers
- b. **corn**
- c. dairy products
- d. cattle and calves

89. The top agriculture commodity for Kansas is:

- a. **cattle and calves**
- b. corn
- c. grain sorghum
- d. wheat

90. Which Kansas agricultural crop commodity represents the highest percentage of the overall U.S. value?

- a. corn
- b. **grain sorghum**
- c. soybeans
- d. wheat

91. What percentage of U.S. farms are owned by individuals, family partnerships or family corporations?

- a. 68%
- b. 78%
- c. 88%
- d. **98%**

92. Farm acreage accounts for _____ percent of the total land in Kansas

- a. 68.6%
- b. 78.6%
- c. **88.6%**
- d. 98.6%

93. Which U.S. president established the United States Department of Agriculture?

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

94. In 2018, which of the following categories of Kansas agricultural exports was NOT in the top five nationally for Kansas?
- a. **All Hay**
 - b. All Wheat
 - c. Sorghum for Grain
 - d. Sorghum for Silage
95. In 2017, Kansas ranked _____ in wheat exports.
- a. 1st
 - b. **2nd**
 - c. 3rd
 - d. 4th
96. In 2017, Kansas ranked _____ in beef and veal exports.
- a. 1st
 - b. **3rd**
 - c. 5th
 - d. 7th
97. In 2018, Kansas ranked _____ in total sorghum for grain production.
- a. **1st**
 - b. 2nd
 - c. 3rd
 - d. 4th
98. In 2018, Kansas ranked _____ in total cropland production.
- a. 1st
 - b. **2nd**
 - c. 3rd
 - d. 4th
99. In 2018, Kansas ranked _____ in total all cattle and calves production.
- a. 1st
 - b. **3rd**
 - c. 5th
 - d. 7th
100. In what year did President Lincoln sign the Morrill Land Grant Collect Act?
- a. 1852
 - b. **1862**
 - c. 1872
 - d. 1882