2019 Reno County Ag Challenge of Champions

Wednesday, July 17, 2019

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!!!2019 Ag Challenge of Champions Written Test**

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

***Agricultural/Livestock Industry***

1. Which feed uses fermentation in order to increase palatability?
2. hay
3. **silage**
4. concentrate
5. by-products
6. What is the most important nutrient in a swine ration?
7. soybean meal
8. corn
9. **water**
10. roughage
11. Tetanus is a \_\_\_\_\_ disease.
12. nutritional
13. **bacterial**
14. viral
15. fungal
16. The amount of fat cover on a market steer is referred to as:
17. carcass merit
18. marbling
19. **finish**
20. fleshing
21. The most common parasites affecting beef cattle are:
22. ticks
23. **flies**
24. roundworms
25. liver flukes
26. \_\_\_\_\_ is a method where calves are given supplemental feeds in an area where larger cattle cannot reach.
27. deep feeding
28. **creep feeding**
29. bunk feeding
30. free feeding
31. The use of low doses of medicines like antibiotics in feeds to prevent illness is referred to as \_\_\_\_\_.
32. subcutaneous
33. suboptimization
34. **subtherapeutic**
35. substration
36. Sometimes called hybrid vigor, \_\_\_\_\_ is a term used to describe a situation when a combination of genes produces offspring that are better than either of the parents.
37. **heterosis**
38. heterozygous
39. heterogeneous
40. homozygous
41. Similar to “mad-cow” disease, \_\_\_\_\_ is a sheep specific version of a transmissible spongiform encephalopathy (TSE) that is always fatal.
42. entertoxemia
43. spider-lamb syndrome
44. **scrapie**
45. leptospirosis
46. The period of time between fertilization and parturition is the:
47. **gestation**
48. ovulation
49. copulation
50. duration
51. The average length of the estrus cycle for sheep is?
52. 12 days
53. **17 days**
54. 21 days
55. 22 days
56. Why are weak pasterns criticized in swine?
57. they indicate a light muscled animal
58. they are the result of excess pressure on the animal’s feet
59. **they tend to lead to torn dewclaws and lameness**
60. they indicate an over-conditioned animal
61. What is the number one reason cows are culled from the herd in the U.S.?
62. structure problems
63. udder problems
64. docility
65. **reproductive failure**
66. Which compartment of the ruminant stomach is called the “true stomach” and is where gastric and enzymatic digestions start?
67. rumen
68. omasum
69. reticulum
70. **abomasum**
71. What is visually used by producers to identify what litter each hog belongs to?
72. **ear notch**
73. brand
74. DNA verification
75. color pattern
76. Which gland in the male produces the sperm cells?
77. vas deferens
78. urethra
79. epididymis
80. **testicles**
81. The release of the egg cell from the ovary is called:
82. fertilization
83. **ovulation**
84. parturition
85. fertilization
86. Which is NOT a consideration for the use of feed additives?
87. **increased nutrient content**
88. improved feed efficiency
89. promote faster gains
90. improved animal health
91. Which breed of goat is primarily used for breeding meat goats?
92. **Boer**
93. Angora
94. Toggenburg
95. Pygmy
96. Often diagnosed by a swollen left side, \_\_\_\_\_ is a condition in livestock caused by a buildup of froth or gas in the rumen.
97. colic
98. **bloat**
99. acidosis
100. scours
101. “Flushing” means to increase the amount of \_\_\_\_\_ for a short period of time to increase litter size.
102. water used
103. shade used
104. **feed fed**
105. medication used
106. Sheep feet should be trimmed \_\_\_\_\_ per year.
107. once
108. **twice**
109. three times
110. four times
111. Ewes should be culled after weaning their lambs if?
112. have a bad udder
113. broken mouth
114. did not raise a lamb
115. **all of the above**
116. Which of the following statements is true when considering a breed of beef cattle?
117. **all breeds have both strong and weak traits**
118. there is one breed that is best in all traits
119. there is a market everywhere for all breeds
120. foundation stock should be purchased at any price
121. Which of the following is NOT an indicator of excessive fat in a hog?
122. wasty jowl
123. **arch over the top when viewed from the rear**
124. shaky middle
125. square top when viewed from the rear

***Farm Equipment***

1. A volt-ampere is the same as a(n):
2. ampere hour
3. ampere-watt
4. watt-hour
5. **watt**
6. A \_\_\_\_\_ is a component used to reduce friction and to maintain clearance between stationary and rotating components of an engine.
7. piston
8. rod
9. **bearing**
10. tappet
11. The engine component that transfers motion from the piston to the crankshaft is the:
12. **connecting rod**
13. flywheel
14. camshaft
15. bearing
16. Shielded metal arc welding (SMAW) uses \_\_\_\_\_ current and \_\_\_\_\_ voltage to produce the arc to generate the heat necessary for melting the base metal and creating a weld pool.
17. low, high
18. **high, low**
19. alternating, constant
20. direct, variable
21. The proportion of time that a welder can operate at maximum capacity without overheating is known as it’s:
22. AWS classification
23. voltage drop
24. **duty cycle**
25. alternating current
26. \_\_\_\_\_ refers to the direction of flow of electricity in the welding circuit.
27. Ampere
28. **Polarity**
29. Resistance
30. Voltage
31. \_\_\_\_\_ is a mixture of water and sulfuric acid used in a lead-acid battery.
32. Hydrometer
33. Terminal
34. **Electrolyte**
35. Thermocouple
36. Piston rings of a small engine are considered to be a part of the \_\_\_\_\_ system.
37. fuel
38. ignition
39. cooling
40. **compression**
41. The \_\_\_\_\_ system replenishes electrical power drawn from the battery during starting and accessory operation.
42. ignition
43. **charging**
44. governor
45. fuel
46. During the compression event in a four-stroke engine \_\_\_\_\_.
47. both valves are open
48. **both valves are closed**
49. the intake valve is open and the exhaust valve is closed
50. the intake valve is closed and the exhaust valve is open
51. During the SMAW process flux and impurities float to the top of the weld and form a layer called:
52. **slag**
53. galvanization
54. oxidation
55. tinning
56. What are the probable results if the welding current is too low or the arc length is too short?
57. **a narrow deposit will pile up, irregular shape**
58. the electrode melts too fast, molten puddle too large and irregular
59. melts off the electrode in large globules, wobbles from side to side as the arc weaves
60. a wide, spattered, irregular weld
61. A \_\_\_\_\_ system is a fluid power system that transmits energy using a gas (typically compressed air).
62. **pneumatic**
63. hydraulic
64. nonsynchronous
65. synchronous
66. Which of these is NOT a part of the cleaning unit on the combine?
67. fan
68. chaffer
69. **beater**
70. sieve
71. The final cleaning of grain in the combine is accomplished at the:
72. **sieve**
73. chaffer
74. finger bar
75. chaffer extension
76. The proper flow pattern for grain in a combine is:
77. cutting, feeding, threshing, separating, handling
78. cutting, threshing, feeding, separating, handling
79. **cutting, feeding, threshing, separating, cleaning, handling**
80. cutting, feeding, threshing, cleaning, separating, handling
81. The basic rule for setting reel speed on a combine is:
82. reel speed is equal to ground speed
83. reel speed is 50% faster than ground speed
84. **reel speed is 25% faster than ground speed**
85. reel speed is 25% slower than ground speed
86. Knife register on a combine cutter bar refers to:
87. **the centering of the cutter bar knife in the guards at the end of both back and forward motions of the bar**
88. the length of the forward stroke of the cutter bar
89. proper spacing of guards on the header
90. adjustment is by use of single or dual point knives
91. A glossy, dry appearance to the insulator nose of a spark plug is a sign of:
92. oxidation
93. **overheating**
94. dry fouling
95. proper operation
96. A number of 5W-30 on an oil container identifies its:
97. service classification
98. quality grade
99. performance rating
100. **viscosity**
101. After the planting season is complete the operator needs to store the vacuum corn meter unit. The following is steps to follow to store the metering unit. Find the one that does NOT belong.
102. remove the cover to relieve pressure on the seal
103. remove the metering plate and store in a cool dry place
104. completely wash the metering unit with soap and water
105. **after washing off the units, completely cover with engine oil to prevent rust**
106. Seed size determines the following. Identify the one that does NOT belong.
107. vacuum setting
108. finger pressure adjustment
109. **planter speed MPH**
110. size of seed plate used
111. The primary function of a planter is to make the “V” trench. Identify what part of the planter makes the “V” trench.
112. metering plates
113. fluted and rippled coulters
114. **the double disk openers**
115. covering the wheels
116. The application rate for field sprayers is usually given in:
117. MPH
118. **GPA**
119. PSI
120. none of these
121. Nozzles should be selected to give the proper:
122. spray pattern
123. particle size
124. application
125. **all of these**

***Farm Management***

1. A(n) \_\_\_\_\_ is the financial record that reflects the profitability of the business over an accounting period, usually one year.
2. net worth statement
3. charts of accounts
4. **income statement**
5. checkbook
6. 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?
7. **current assets**
8. non-current assets
9. timely assets
10. non-timely assets
11. Smith Brothers Farm has current assets of $400,000 and current liabilities of $200,000. What would be the current net worth ratio?
12. **2:1**
13. 1:2
14. 1:1
15. 1-0
16. \_\_\_\_\_ include projections of income and expenses for all or part of the business.
17. **Budgets**
18. Enterprises
19. Goals
20. Objectives
21. 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.
22. **cash flow summary**
23. enterprise budget
24. income statement
25. net worth statement
26. 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?
27. 104 bushels
28. 123 bushels
29. **112 bushels**
30. 98 bushels
31. To plan a budget, you must know the amount and value of four factors:
32. capital, labor, liquidity, operations
33. labor, land, liquidity, operations
34. **capital, land, labor, operating cost**
35. capital, labor, land, insurance
36. Which of the following would cause an increase in the price of a commodity?
37. increase in supply and a decrease in demand
38. **decrease in supply with no change in demand**
39. decrease in demand with no change in supply
40. increase in supply and no change in demand
41. A futures contract gives the seller:
42. an obligation to buy the corresponding cash commodity at the price sold
43. **an obligation to sell the corresponding cash commodity at the price sold**
44. an option but not an obligation to sell the corresponding cash commodity at the price sold
45. b and c as there is no difference between and option and an obligation
46. A business owned by its customers or patrons is called what?
47. an LLC
48. a non-profit organization
49. a joint venture
50. **a cooperative**
51. Corn sold by U.S. sellers to Japanese buyers would be regarded as:
52. imports for the U.S.
53. net exports for the U.S.
54. exports for Japan
55. **exports for the U.S.**
56. Normally a broker will require a hedger to deposit with them a certain amount of money in order to protect against a decline in the value of their account or hedged position due to adverse moves in the market price. What is this deposit normally called?
57. **margin money**
58. reserve requirement
59. commission fee
60. hedge premium
61. In marketing, “basis” is the difference between what?
62. **a futures price and a cash price**
63. a projected price and an actual price
64. two current cash prices
65. two current future prices
66. Which of the following actions is intended to limit the price paid for corn fed to feeder cattle?
67. buy a put option
68. sell a call option
69. sell a futures contract
70. **buy a call option**
71. A soybean farmer has soybeans stored in on-farm storage bins. The farmer has two pricing options (per bushel): A = sell today for $8.75 or B = sell in two years for $9.00. Which of the following is true about the farmer’s “best” pricing and marketing strategy?
72. **it depends on storage costs and interest rates**
73. it depends on what it cost to produce those soybeans
74. sell in two years because the price is higher
75. sell today because the price two years from now cannot be guaranteed
76. Calculate the first-year payment on a constant principal/decreasing payment loan for $240,000 over 20 years at 9% interest.
77. $12,450
78. $22,350
79. **$33,600**
80. $36,200
81. Up to harvest time a farmer has spent $20 per acre for labor, seed and machine costs on oats. Price of oats has fallen and a localized drought has reduced production yields. With an anticipated price of $1.50 per bushel on an expected yield of 12 bushels per acre, the farmer cannot expect to make a profit on this crop. Assuming that the oats crop can be harvested for $8.00 per acre, the farmer should:
82. assume his $20 loss for the year and leave the oat in the field
83. harvest and sell the oats crop
84. sell the oats crop as pasture at $4.00 per acre
85. **sell the oats crop for hay at $55.00 per acre**
86. A business has a debt-to-equity ratio of 2:1. The non-current liabilities total $90,000 and the current liabilities total $50,000. What is the value of the assets?
87. $70,000
88. $140,000
89. **$210,000**
90. $280,000
91. A grain combine can be purchased for $90,000, which will lead to a total annual fixed cost of $12,000. The variable costs will be $10 per acre. If a custom operator can be hired to combine grain for $25 per acre, what is the minimum number of acres one should plan to harvest to justify buying the combine?
92. 600
93. **800**
94. 1,000
95. 1,200
96. A feedlot operator buys feeder steers, finishes them, and sells them. The operator estimates that the finished steers will sell for $80 per cwt, and that it will cost $250 per head to bring them from the 700-pound purchase weight to the 1,100-pound selling weight. What is the highest price the operator can pay per hundred weight for 700-pound feeder steers to break even?
97. $62
98. $80
99. **$90**
100. $96
101. 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 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?
102. $4.58
103. $4.63
104. **$4.72**
105. $4.77
106. none of the above
107. 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:
108. 2.95 pounds/day
109. 1.92 pounds/day
110. **1.66 pounds/da**y
111. .285 pounds/day
112. none of the above
113. 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:
114. $1.25/pound
115. $1.32/pound
116. **$1.39/pound**
117. $1.43/pound
118. none of the above
119. 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?
120. 41.9 bushels
121. 45.2 bushels
122. **51.9 bushels**
123. 63.3 bushels
124. none of the above
125. A farmer has total assets of $600,000 of which land is $300,000. The farmer’s debt:equity ratio is 0.5. What will the farmer’s debt:equity ratio be if the land value increases by 10%?
126. 0.45
127. **0.47**
128. 0.53
129. 0.55
130. none of the above

***General Agriculture***

1. Agriculture and related industries provide jobs for \_\_\_\_\_ of the total U.S. workforce.
2. **9%**
3. 10%
4. 12%
5. 15%
6. \_\_\_\_\_ makes up the highest amount of cash receipts for farming totaling $92.09 billion.
7. Feed crops
8. Oil crops
9. **Meat animals**
10. Dairy products
11. Today, each farmer produces food and fiber for \_\_\_\_\_ people annually in the United States and abroad.
12. 150
13. 154
14. **168**
15. 170
16. \_\_\_\_\_ of farms are family owned.
17. 93%
18. 95%
19. **97%**
20. 98%
21. The top 5 foreign customers that U.S. agricultural products are exported to are:
22. EU-28, Japan, Canada, South Korea, China
23. **China, Canada, Mexico, Japan, EU-28**
24. Canada, Mexico, Japan, EU-28, Hong Kong
25. EU-28, China, Mexico, South Korea, Israel
26. The top U.S. ag imports totaling $12.8 billion is:
27. fresh/processed vegetables
28. **fresh/processed fruits**
29. coffee & cocoa
30. grains and feeds
31. Agriculture programs equal what percentage of the USDA budget?
32. 9%
33. 10%
34. **11%**
35. 15%
36. Which U.S. president established the USDA?
37. **Abraham Lincoln**
38. George Washington
39. Theodore Roosevelt
40. Thomas Jefferson
41. \_\_\_\_\_ is the current U.S. Secretary of Agriculture.
42. Mike Beam
43. Jackie McClaskey
44. **Sonny Perdue**
45. Tom Vilsack
46. \_\_\_\_\_ is the current Kanas Secretary of Agriculture
47. **Mike Beam**
48. Jackie McClaskey
49. Sonny Perdue
50. Tom Vilsack
51. Farm and ranch families make up less than \_\_\_\_\_ of the U.S. population.
52. 0.5%
53. 0.75%
54. 1%
55. **2%**
56. U.S. consumers spend just \_\_\_\_\_ of their disposable income on food each year.
57. 8%
58. 9%
59. **10%**
60. 15%
61. The top U.S. export is:
62. **soybeans**
63. beef
64. dairy products
65. corn
66. \_\_\_\_\_ and \_\_\_\_\_ are the United States’ largest trading partners. Together, they account for 31% of all U.S. agricultural exports.
67. China, Mexico
68. Canada, Japan
69. **China, Canada**
70. China, Japan
71. The average age of principal farm operators in Kansas has been steadily increasing over the past three decades and is now \_\_\_\_\_ years old.
72. 55
73. **58**
74. 60
75. 65
76. Farmers and ranchers receive only \_\_\_\_\_ cents of every retail dollar spent on food that is eaten at home and away from home.
77. 11
78. **19**
79. 25
80. 31
81. Since 1982 the erosion rate by water on U.S. croplands has been reduced by more than \_\_\_\_\_ percent.
82. 10%
83. 20%
84. 30%
85. **40%**
86. U.S. consumers spend just \_\_\_\_\_ percent of their disposable income on food each year, while those in other countries spend much more.
87. 6%
88. **10%**
89. 16%
90. 20%
91. The Kansas Department of Agriculture is located in:
92. Hays
93. Hutchinson
94. **Manhattan**
95. Salina
96. In 2018, Kansas ranked 1st as a state in total U.S. production in all areas EXCEPT:
97. All Wheat
98. **Cattle on Feed**
99. Sorghum for Grain
100. Sorghum for Silage
101. In 2016, Kansas ranked \_\_\_\_\_ in total agricultural exports.
102. 1st
103. 2nd
104. 6th
105. **9th**
106. According to the 2012 census, which Kansas county accounted for the most farms?
107. Butler
108. Dickinson
109. **Reno**
110. Sedgwick
111. In 2017, which grain crop in Kansas accounted for the most farm value (dollars)?
112. **corn**
113. oats
114. sorghum
115. wheat
116. In 2017, which Kansas county produced the most bushels of wheat?
117. Kingman
118. McPherson
119. Reno
120. **Sumner**
121. In 2017, what was the average size of farms in Kansas?
122. 570 acres
123. 670 acres
124. **770 acres**
125. 870 acres