

2024 Ag Challenge of Champions Written Test

Multiple Choice: (On the back of the scan sheet, bubble in the correct answer in the “Written Exam A” section of the scan sheet)

Agricultural/Livestock Industry

1. A visual evaluation of the amount of muscle on a hog is best seen by looking at which view of the hog?
 - a. side
 - b. rear**
 - c. front
 - d. top
2. A beef carcass with slightly abundant marbling with a maturity level A will be what grade?
 - a. prime**
 - b. choice
 - c. select
 - d. cutter
3. Diseases present in the animal's body at levels too low to cause visible effects are:
 - a. subtherapeutic
 - b. chemobiotics
 - c. probiosis
 - d. subclinical**
4. The most intensive form of inbreeding is called?
 - a. purebreeding
 - b. closebreeding**
 - c. linebreeding
 - d. outcrossing
5. Lamb prices vary throughout the year and usually reach a high during which time?
 - a. December to February
 - b. March to May**
 - c. June to August
 - d. September to November
6. The largest compartment of the ruminant stomach for a mature grazing cow is called the:
 - a. reticulum
 - b. rumen**
 - c. abomasum
 - d. omasum
7. Administering a medicinal agent to livestock that requires placement directly into a vein is called:
 - a. intravenous**
 - b. intramuscular
 - c. subcutaneous
 - d. intrarumen

8. The amount of fat cover on a market steer is referred to as:

- a. marbling
- b. finish**
- c. carcass merit
- d. fleshing

9. EPD stands for:

- a. Extra Production Difference
- b. Express Package Delivery
- c. Expected Progeny Difference**
- d. Expected Product Differential

10. Which livestock product has the highest consumption rate in the United States?

- a. lamb
- b. goat
- c. pork
- d. beef**

11. Which nutrient is most essential to livestock survival?

- a. protein
- b. carbohydrates
- c. vitamins/minerals
- d. water**

12. The term used for a castrated male lamb is?

- a. steer
- b. boar
- c. wether**
- d. barrow

13. Which is considered a primal cut of pork?

- a. loin**
- b. rack
- c. round
- d. breast/plate

14. What organ in the female reproductive tract produces the eggs?

- a. cervix
- b. ovaries**
- c. uterus
- d. vulva

15. Which of the following species is a “seasonal breeder”?

- a. sheep**
- b. cattle
- c. hogs
- d. rabbits

16. A _____ is a group of animals that are similar in a number of characteristics and have been raised under the same management practices.
- a. **contemporary group**
 - b. management group
 - c. performance group
 - d. progeny group
17. The gestation time for cattle is:
- a. 114 days
 - b. 148 days
 - c. **283 days**
 - d. 350 days
18. What is the single most important trait in market goats?
- a. style
 - b. capacity
 - c. **muscle**
 - d. finish
19. What is the term describing the incorrect jaw structure that is overshot the bottom jaw?
- a. monkey mouth
 - b. **parrot mouth**
 - c. walrus mouth
 - d. toucan mouth
20. _____ shows the percent of carcass weight in boneless, closely trimmed retail cuts from the round, loin, rib, and chuck that have been closely trimmed of fat.
- a. Quality grade
 - b. BCTRC
 - c. **Yield grade**
 - d. Dressing percent
21. The pituitary gland releases hormones that affect all of the following except:
- a. **blood pressure**
 - b. kidneys
 - c. thyroid
 - d. uterus
22. Where are most of the nutrients absorbed in the digestive system of a pig?
- a. stomach
 - b. **small intestine**
 - c. large intestine
 - d. colon

23. What hormone can interfere with milk letdown when a cow becomes frightened or upset?
- a. prolactin
 - b. progesterone
 - c. adrenaline (epinephrine)**
 - d. oxytocin
24. Which of the following is NOT a primal cut of lamb?
- a. shoulder
 - b. breast
 - c. round**
 - d. loin
25. Which government agency approves antibiotics for the use in livestock and sets the withdrawal periods?
- a. FSIS
 - b. FDA**
 - c. USDA
 - d. AMS

Farm Equipment

26. The diesel engine was originally designed to operate on:
- a. peanut and vegetable oil**
 - b. diesel fuel
 - c. gasoline
 - d. transmission fluid
27. What is the correct order of the strokes in a four-stroke diesel engine?
- a. intake, combustion, power, exhaust
 - b. intake, compression, spark, exhaust
 - c. intake, compression, power, exhaust**
 - d. exhaust, intake, power, compression
28. A diesel engine uses _____ to ignite diesel fuel.
- a. spark plug
 - b. hot compressed air**
 - c. cylindrical force
 - d. a low compression ratio
29. As air temperatures drop, engines need lighter weight oil to combat issues with viscosity. Which of the following oil types would be most desirable during a Kansas winter?
- a. SAE 15W-40
 - b. SAE 140
 - c. SAE 10W-30**
 - d. SAE 40

30. What is the purpose of a thermostat in a warm liquid-cooled engine?

- a. mix water and antifreeze together
- b. control exhaust pressure
- c. prevent coolant from circulating
- d. **allow coolant to circulate**

31. What does the picture to the right represent?

- a. safety alert sign
- b. **slow moving vehicle sign**
- c. service alert sign
- d. tire pressure alert sign



32. Part of the tractor transmission system provided with the standard externally splined shaft at the rear end of the tractor used to attach a baler, mower, post hole diggers, etc.

- a. **PTO**
- b. clutch
- c. differential gear
- d. rear axle

33. Minimum tillage wherein primary tillage is completely avoided and secondary tillage is restricted to seedbed preparation in the row zone only is referred to as:

- a. reduced tillage
- b. mulch tillage
- c. intensive tillage
- d. **zero tillage**

34. The heart of a seed sowing machine is a:

- a. seed box
- b. **seed metering mechanism**
- c. seed tube
- d. all of the above

35. The device for engaging and disengaging the power shaft from the gearbox is known as:

- a. shaft
- b. gear
- c. **clutch**
- d. circuit

36. Threshing in a combine causes more seed damage if:

- a. **speed is increased**
- b. clearance is increased
- c. feed rate is reduced
- d. speed is reduced

37. Weight transfer in a tractor for a tractor implement system is caused by:

- a. **application of pull**
- b. tractor force
- c. tractor slip
- d. weight of operator

38. Notched disc blades on disc harrows are provided to:

- a. **enhance penetration**
- b. improve balancing of gangs
- c. save on steel
- d. reduce draft

39. A flat fan nozzle is suitable for:

- a. foliage spray
- b. insect control
- c. spot spray
- d. **herbicide spray**

40. Differential lock in a tractor is used to improve:

- a. lateral stability
- b. braking performance
- c. hydraulic lift
- d. **traction of a wheel**

41. The use of a pressurized radiator cap is to:

- a. reduce evaporation loss
- b. increase engine operating temperature
- c. **increase boiling point of water**
- d. reduce heat losses

42. Choke in an internal combustion engine is used to control:

- a. camshaft speed
- b. specific fuel consumption
- c. **air fuel mixture**
- d. crankshaft speed

43. The penetration of a tandem disc harrow can be increased by:

- a. increasing tilt angle
- b. increasing disc angle
- c. **increasing disc diameter**
- d. all of the above

44. In a combine harvester, by increasing the speed of the threshing cylinder:

- a. **threshing efficiency can be increased**
- b. broken grain loss can be minimized
- c. un-threshed grain can be increased
- d. straw breakup can be increased

45. In a sprayer, overlapping can be increased by increasing:

- a. nozzle diameter
- b. pressure
- c. discharge
- d. height of nozzle**

46. Correcting the seed rate during planting is known as:

- a. standardization
- b. filtration
- c. calibration**
- d. testing

47. On a tractor, pressure should be less in rear wheels as compared to front wheels because of:

- a. high traction**
- b. low draft
- c. high draft
- d. none of the above

48. On a tractor, pressure should be high in front wheels of the tractor because of:

- a. high slippage
- b. low slippage
- c. high traction
- d. easy steer ability**

49. While increasing the forward speed of the combine harvester, speed of reel should be:

- a. increased in same ratio**
- b. decreased in same ratio
- c. no changes
- d. doubled

50. Engines produce dark black smoke due to:

- a. burning of oil
- b. incomplete combustion**
- c. moisture in fuel
- d. none of the above

Farm Management

51. Farmer Brown raises corn and feeds it to his hogs. This type of business structure is an example of:

- a. vertical integration**
- b. horizontal integration
- c. a supply company
- d. a marketing cooperative

52. If the price of a commodity is too low, the demand will be greater than the supply resulting in a:
- a. surplus
 - b. boycott
 - c. monopoly
 - d. **shortage**
53. Corn and grain sorghum are substitutes for each other in many livestock feed rations. Assuming they are substitutes, a decrease in the supply of corn would cause the demand for grain sorghum to:
- a. shift to the left
 - b. **shift to the right**
 - c. decrease
 - d. remain unchanged
54. When the size of the soybean harvest exceeds locally available farm and elevator storage, what happens to the basis?
- a. basis narrows
 - b. **basis widens**
 - c. basis goes out of existence
 - d. basis is usually the same all year
55. The money you must deposit with a broker to insure performance in order to trade in the futures market is called:
- a. basis
 - b. **margin**
 - c. commission
 - d. spread
56. In the event a business is forced to liquidate, which of the following would have first claim on the process?
- a. **mortgage**
 - b. accounts payable
 - c. holders of common stock
 - d. unsecured creditors
57. Corn has an expected yield of 110 bushels per acre and has a production cost of \$140.00 per acre. Expected harvest prices are \$2.00 per bushel for corn and \$5.00 per bushel for soybeans. Soybeans can be raised at a production cost of \$100 per acre. At what breakeven yield per acre would soybeans generate the same net return per acre as dryland corn?
- a. 33.7 bushels
 - b. **36.0 bushels**
 - c. 44.0 bushels
 - d. 50.4 bushels
58. In order for limited partners to maintain their limited liability, they can NOT:
- a. share in the profits of the limited partnership
 - b. own more than one-third of the limited partnership
 - c. **participate in the management of the limited partnership**
 - d. own more than 49.95 of the limited partnership

59. You are considering the purchase of a combine, rather than continuing to hire a custom operator at \$22.00 per acre. If you purchase the machine, the annual fixed costs (interest, depreciation, etc.) will be \$20,000. The variable cost is \$12.00 per acre including the extra labor. There would be no other changes in costs and returns association with ownership and no savings other than the custom charges. How many acres must be harvested each year in order to justify (on a breakeven basis) purchasing the combine?
- a. 833.33
 - b. 1,000
 - c. 1,200
 - d. **2,000**
60. A written agreement by which an owner of property transfers title to someone for the benefit of beneficiaries is a:
- a. **trust**
 - b. partnership
 - c. corporation
 - d. sole proprietorship
61. The big advantage of renting a major asset as compared to purchasing is that renting:
- a. reduces your income tax
 - b. increases your depreciation
 - c. **releases capital for other uses**
 - d. improves output per worker
62. The cost of producing one additional unit of output is called:
- a. opportunity cost
 - b. substitution cost
 - c. average cost
 - d. **marginal cost**
63. If you buy a 35-pound feeder pig for \$0.90 per pound and sell the same animal at 265 pounds for \$0.45 per pound, your breakeven cost of production per pound is:
- a. \$0.305
 - b. \$0.309
 - c. \$0.362
 - d. **\$0.382**
64. A highly leveraged business:
- a. is less susceptible to business risk
 - b. uses very little borrowed money
 - c. **is very susceptible to financial risk**
 - d. is one located at the edge of an earthquake zone
65. A contract that gives the holder the right, but NOT the obligation, to sell at a specified price is a:
- a. futures contract
 - b. **put option**
 - c. call option
 - d. forward contract

66. The specified price at which the option purchaser may buy or sell the commodity is the:
- a. **strike price**
 - b. call price
 - c. put price
 - d. option price
67. A farmer has \$150,000 of principal remaining on a mortgage at the end of this fiscal year. The annual principal payment is \$15,000. Accrued interest at the end of the year amounts to \$8,500. The year-end balance sheet will show:
- a. non-current liabilities of \$158,500
 - b. current liabilities of \$158,500
 - c. non-current liabilities of \$150,000 and current liabilities of \$8,500
 - d. **non-current liabilities of \$135,000 and current liabilities of \$23,500**
68. A producer sells 21 feeder steers for \$85/cwt. The average weight per steer is 538 pounds. There is a 2.5% sales commission and yardage fees of \$2.30 per head. The net amount received for the pen of steers would be:
- a. \$443.57
 - b. **\$9,314.92**
 - c. \$9,316.12
 - d. \$9,555.00
69. A feedlot operator buys feeder steers, finishes them, and sells them. The operator estimates that finished steers will sell for \$66 per cwt. and that will cost \$185 per head to bring them from the 750-pound purchase weight to the 1100-pound selling weight. What is the breakeven price the operator can pay for the 750-pound feeder steers?
- a. **\$72.13/cwt.**
 - b. \$73.85/cwt.
 - c. \$78.15/cwt.
 - d. \$93.08/cwt.
70. A soybean producer decides to store his soybeans in the local elevator for four months. The price at harvest is \$5.25 per bushel and elevator charges \$0.02 per bushel per month for storage plus a \$0.05 per bushel handling charge. He has 5,000 bushels to sell and must borrow \$26,000 at 9% annual interest while he store the soybeans. What price must he receive for his soybeans to break even and cover his storage and opportunity costs?
- a. **\$5.54**
 - b. \$5.49
 - c. \$5.48
 - d. \$5.45
71. A grain farmer who normally stores his soybeans at a local elevator has decided to use the options market to create a synthetic storage. To do so he will sell his beans at harvest and:
- a. buy a put option'
 - b. sell a put option
 - c. **buy a call option**
 - d. sell a call option

72. A farmer purchases 525-pound feeder steers for \$0.82 per pound and plans to sell the steers at 750 pounds. The farmer estimates the total cost of gain to be \$0.60 per pound. The nearest breakeven price when the steers are sold at 750 pounds is:
- a. \$0.6900/pound
 - b. \$0.6918/pound
 - c. \$0.7271/pound
 - d. **\$0.7540/pound**
73. A farmer is purchasing a new baler at a cost of \$24,000. His dealer will finance the baler under the following terms: 20% down payment with the balance repaid in equal payments over the next five years at 9% APR. The farmer expects the baler to last for 10 years and have a salvage value of \$4,000. How much interest will the farmer pay the first year of the loan?
- a. **\$1,728**
 - b. \$1,944
 - c. \$2,160
 - d. \$2,400
74. A farmer has a debt:worth ratio of 2:1. The current liabilities total \$50,000 and the non-current liabilities total \$110,000. What is the value of the assets?
- a. \$80,000
 - b. \$160,000
 - c. \$210,000
 - d. **\$240,000**
75. A feedlot operator purchases a pen of 125 feeder steers with an average weight of 788 pounds and sells them at an average weight of 1,041 pounds. Total feed cost for the pen is \$16,420. Feed cost per pound of gain is equal to:
- a. \$0.440
 - b. **\$0.519**
 - c. \$0.649
 - d. \$0.720

General Agriculture

76. Who is the current U.S. Secretary of Agriculture?
- a. Mike Beam
 - b. Jackie McClaskey
 - c. Sonny Perdue
 - d. **Tom Vilsack**
77. The Kansas Department of Agriculture is located in?
- a. Hays
 - b. **Manhattan**
 - c. Salina
 - d. Topeka

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79. The average age of a Kansas farmer is:

- a. 38 years old
- b. 48 years old
- c. **58 years old**
- d. 68 years old

80. What is the approximate % of the state's land that is under agricultural production?

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

81. What is the average size of a Kansas farm?

- a. 481 acres
- b. 581 acres
- c. 681 acres
- d. **781 acres**

82. Which of the following is NOT one of the top five agricultural products grown or raised in Kansas?

- a. cattle & calves
- b. **cotton**
- c. soybeans
- d. wheat

83. The location of the animal health corridor is defined as setting between what two areas?

- a. Hays, Kansas and Denver, Colorado
- b. Kansas City, Kansas and St. Louis, Missouri
- c. **Manhattan, Kansas and Columbia, Missouri**
- d. There is no such location as the animal health corridor.

84. Kansas ranks where among other states in sorghum production?

- a. **1st**
- b. 2nd
- c. 3rd
- d. 4th

85. Kansas ranks where among other states in sorghum for grain produced?

- a. **1st**
- b. 2nd
- c. 3rd
- d. 4th

86. Kansas ranks where among other states in sorghum for silage produced?

- a. 1st
- b. 2nd**
- c. 3rd
- d. 4th

87. Kansas ranks where among other states in winter wheat produced?

- a. 1st**
- b. 2nd
- c. 3rd
- d. 4th

88. According to the 2022 Census of Agriculture, Reno County ranks _____ in total market value of agricultural products sold.

- a. 1st
- b. 7th
- c. 12th**
- d. 20th

89. According to the 2022 Census of Agriculture, which crop represents the most acres in Reno County?

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

90. According to the 2022 Census of Agriculture, which species of livestock represents the most inventory in Reno County?

- a. cattle & calves**
- b. chickens (broilers & layers)
- c. hogs & pigs
- d. sheep & lambs

91. What percentage of Kansas farms and ranches are family-owned?

- a. 63%
- b. 73%
- c. 83%
- d. 93%**

92. Which state is ranked highest in total cropland acres and acres planted to principal crops?

- a. Arkansas
- b. Kansas**
- c. Nebraska
- d. Wyoming

93. As a state, where does Kansas rank in value of total agricultural production?

- a. 1st
- b. 7th**
- c. 12th
- d. 20th

94. Which of the following countries are NOT in the top ten export markets for Kansas?

- a. Canada
- b. France**
- c. Mexico
- d. Vietnam

95. Which commodity represents the highest percentage of Kansas agricultural exports?

- a. crops
- b. dairy products, eggs & honey
- c. livestock & animal products**
- d. value-added ag products

96. Which state is the nation's leader in agricultural exports?

- a. California**
- b. Kansas
- c. Oklahoma
- d. Texas

97. Agriculture and related industries provide jobs for approximately _____ of the total U.S. workforce?

- a. 9%**
- b. 19%
- c. 29%
- d. 39%

98. In the U.S., _____ makes up the highest amount of cash receipts for farming totaling \$92.09 billion.

- a. dairy products
- b. feed crops
- c. meat animals**
- d. oil crops

99. Today, each farmer produces food and fiber for approximately _____ people annually in the United States and abroad.

- a. 158
- b. 168**
- c. 178
- d. 188

100. Which U.S. President established the USDA?

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