

2025 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. Which factor does NOT affect the demand for beef?
 - a. income per person
 - b. location of consumers**
 - c. meat preferences
 - d. number of people
2. Since 1970, which breed of sheep has had the largest number registered with their breed association?
 - a. Hampshire
 - b. Rambouillet
 - c. Southdown
 - d. Suffolk**
3. Which is NOT a potential benefit of genetic engineering in livestock production?
 - a. developing disease resistant animals
 - b. developing new drugs and vaccines
 - c. developing new species of livestock**
 - d. specifying the sex of an animal before conception
4. Which beef cattle yield grade indicates the highest yield of lean meat?
 - a. Yield Grade 1**
 - b. Yield Grade 3
 - c. Yield Grade 5
 - d. Yield Grade 7
5. Much of the flesh referred to as meat in farm animals is composed of:
 - a. cardiac muscle
 - b. skeletal muscle**
 - c. smooth muscle
 - d. unstriated muscle
6. _____ 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. MPV
 - c. OSB
 - d. SPF
7. Which trait for swine has the lowest heritability estimate?
 - a. carcass length
 - b. litter size**
 - c. loin muscle area
 - d. percent ham

8. Cattle with a U.S. Quality Grade of Prime will have a marbling grade of:
- a. moderate
 - b. modest
 - c. slight
 - d. **slightly abundant**
9. Lamb prices vary throughout the year and usually reach a high during which time?
- a. December to February
 - b. June to August
 - c. **March to May**
 - d. September to November
10. A nutritional problem characterized by a swollen abdomen on the left side, labored breathing, profuse salivation, groaning, lack of appetite, and stiffness is:
- a. anemia
 - b. **bloat**
 - c. colic
 - d. founder
11. Which vitamin do animals tend to produce enough of so that it does NOT need to be included as a specific nutrient in their feed rations?
- a. Vitamin A
 - b. **Vitamin C**
 - c. Vitamin D
 - d. Vitamin E
12. Pinkeye is a disease in cattle that is carried by:
- a. **insects**
 - b. mites
 - c. rodents
 - d. worms
13. Many of the odor problems from confinement operations are related to the release of _____ from manure.
- a. **ammonia**
 - b. carbon dioxide
 - c. methane
 - d. sulfur
14. Which species of livestock is most efficient into converting feed into energy and protein?
- a. cattle
 - b. goats
 - c. sheep
 - d. **swine**

15. Vitamins that are stored in the body and need NOT be consumed everyday are:

- a. B complex vitamins
- b. fat soluble**
- c. selenium & manganese
- d. water soluble

16. Cattle infected with this disease often abort during the last half of pregnancy.

- a. actinobacillosis
- b. brucellosis**
- c. enteritis
- d. paratuberculosis

17. Which of the following minerals is categorized as a macro mineral?

- a. calcium**
- b. iodine
- c. manganese
- d. zinc

18. Which of the following diseases is a tick-borne disease of cattle?

- a. bovine babesiosis**
- b. brucellosis
- c. fog fever
- d. trypanosomosis

19. Which of the following is key to immunity in young calves and vital in the control of diarrhea?

- a. antiparasitic agents
- b. colostrum**
- c. complete isolation for the first 24 hours after birth
- d. vaccination of pregnant cattle

20. Which of the following cattle disease is highly fatal in young cattle and almost entirely preventable by vaccination?

- a. blackleg**
- b. calf scours
- c. Johne's disease
- d. listeriosis

21. What term is used for when one or more of a boar's testicles have NOT descended into the scrotum?

- a. callous
- b. chondrocyte
- c. crepitus
- d. cryptorchid**

22. Which of the following organs produces insulin to control sugar metabolism and is located in the fold of the duodenum in a pig?
- a. adrenal gland
 - b. gall bladder
 - c. pancreas**
 - d. pituitary gland
23. What is the hormone that aids in parturition and causes milk let down?
- a. iron
 - b. progesterone
 - c. oxytocin**
 - d. testosterone
24. The gestation period for cattle is:
- a. 114 days
 - b. 148 days
 - c. 283 days**
 - d. 350 days
25. The use of liquid nitrogen for storage of semen and embryos is referred to as:
- a. cloning
 - b. cryopreservation**
 - c. genetic manipulation
 - d. hydroponics

Farm Equipment

26. A four-stroke engine gets its name from:
- a. the number of cylinders it has
 - b. the number of engineers who designed the original engine
 - c. the number of piston movements during a combustion cycle**
 - d. the number of valves used in the engine design
27. Which stroke follows the exhaust stroke?
- a. combustion
 - b. compression
 - c. intake**
 - d. power
28. To complete one operating cycle, the crankshaft of a four-stroke engine must rotate:
- a. one-half revolution
 - b. one revolution
 - c. two revolutions**
 - d. four revolutions

29. For each revolution of the crankshaft, the camshaft revolves:

- a. one-half revolution
- b. one revolution**
- c. two revolutions
- d. four revolutions

30. The correct method for tightening a flywheel is:

- a. as tight as possible
- b. using a torque wrench**
- c. using an impact wrench
- d. using only hand strength to ensure it is secure

31. A diesel engine uses _____ to ignite diesel fuel.

- a. a low compression ratio
- b. cylindrical force
- c. hot compressed air**
- d. spark plug

32. What is the typical compression ratio of a diesel engine?

- a. 9:1
- b. 16:1
- c. 18:1**
- d. 25:1

33. Which of the following is a symptom of head gasket failure in an engine?

- a. engine overheating
- b. loss of compression
- c. loss of coolant
- d. all of the above**

34. Which of the following is a typical symptom of a failing oil cooler in a diesel engine?

- a. coolant in the engine oil**
- b. cylinder wear
- c. dirty fuel bowl
- d. excessive hard starting

35. Which of the following is a cause of injector failure in a diesel engine?

- a. excessive injection
- b. internal deposits in the injector
- c. poor quality diesel fuel
- d. all of the above**

36. In reference to both diesel and gasoline engines, what do the letter "EGT" refer to:

- a. excellent gas temperatures
- b. excessive gas temperatures
- c. exhaust gas temperatures**
- d. extreme gas temperatures

37. Which component of a combine is responsible for cutting the crop?

- a. auger
- b. grain tank
- c. header**
- d. thresher

38. What is one of the main advantages of using a combine harvester on a farm?

- a. it allows for faster and more efficient harvesting**
- b. it increases the labor intensity of farming
- c. it requires less maintenance than other equipment
- d. it reduces the need for irrigation

39. What technology has significantly improved the precision agriculture capabilities of modern combines?

- a. basic hydraulic functions
- b. GPS and yield mapping systems**
- c. manual calibration processes
- d. mechanical threshing capabilities

40. Which type of farm sprayer is typically towed behind a tractor?

- a. backpack sprayer
- b. boom sprayer**
- c. drone sprayer
- d. handheld sprayer

41. Which component of a farm sprayer is responsible for producing the spray pattern?

- a. hose
- b. nozzle**
- c. pump
- d. tank

42. When is the best time to use a farm sprayer for pesticide application?

- a. at noon when the temperatures are highest
- b. during windy conditions
- c. in the early morning or late evening**
- d. when it is raining

43. What is the primary function of a grain drill?

- a. to apply fertilizers
- b. to harvest crops
- c. to plant seeds at specific depths and intervals**
- d. to till the soil

44. What advantage does a no-till grain drill provide?

- a. increases soil erosion
- b. only for use in wet conditions
- c. reduces soil disturbance**
- d. requires more water

45. When considering the uniformity of seed placement, which aspect of a grain drill's design plays a crucial role?
- a. **the configuration of the seed furrow openers**
 - b. the paint color of the drill
 - c. the type of seed box
 - d. the weight of the drill
46. What is the significance of adjusting seed depth in precision planting, and how does it impact crop yields?
- a. **correct seed depth maximizes germination and root establishment**
 - b. deeper planting promotes drought resistance
 - c. seed depth has no effect on yields
 - d. shallower planting increases weed competition
47. What is the primary function of a grain auger?
- a. to clean grain
 - b. to process grain into flour
 - c. to store grain
 - d. **to transport grain from one place to another**
48. What is the advantage of using a portable grain auger?
- a. **it can be easily moved to different locations for use**
 - b. it has a larger capacity
 - c. it is more durable than stationary options
 - d. it requires less maintenance
49. How can proper aeration within a grain bin help?
- a. it allows more grain to be stored
 - b. it improves the flavor of the grain
 - c. it increases the weight of the grain
 - d. **it prevents spoilage and pest infestations**
50. Which of the following is a critical consideration when selecting a location for a grain bin on a farm?
- a. availability of electricity
 - b. proximity to a road
 - c. soil type
 - d. **all of the above**

Farm Management

51. Which of the following is NOT one of the basic farm financial statements?
- a. balance sheet
 - b. income statement
 - c. **monthly bank statement**
 - d. statement of cash flows

52. Which of the following statements about the cash method of accounting is true?
- a. Inventories are included as cash with the cash method of accounting.
 - b. The cash method of accounting is more complicated than the accrual adjusted accounting system.
 - c. The cash method of accounting more accurately reports true net income for the farm.
 - d. **The cash method of accounting reports receipts and expenditures when they are received or paid.**
53. Which of these ratio types can help a farm business measure its overall ability to pay all debts, if the business was sold tomorrow?
- a. efficiency
 - b. liquidity
 - c. profitability
 - d. repayment capacity
 - e. **solvency**
54. Renting cropland using a cash rent contract rather than using a production share rent contract, results in:
- a. less risk for both the landlord and the tenant
 - b. **less risk for the landlord and more risk for the tenant**
 - c. more risk for both the landlord and the tenant
 - d. more risk for the landlord and less risk for the tenant
55. What type of account is used to deposit funds with a broker when trading futures contracts?
- a. deposit
 - b. escrow
 - c. loan
 - d. **margin**
56. The difference between net worth and total assets is:
- a. capital gain
 - b. capital loss
 - c. net profit
 - d. **total liabilities**
57. What does the income statement tell a farmer?
- a. whether or not enough cash was generated to meet all cash needs
 - b. **whether or not the farm was profitable**
 - c. whether or not total assets exceed total liabilities
 - d. all of the above
58. Which financial statement details a farm's assets, liabilities, and equity?
- a. **balance sheet**
 - b. income statement
 - c. statement of cash flows
 - d. statement of owner's equity

59. Which government agency administers farm program payments to farmers?

- a. Congress
- b. Department of the Interior
- c. **Farm Service Agency**
- d. Farmers aren't eligible for government programs

60. If a farmer's total revenue is greater than the total of variable and fixed costs, the farmer has:

- a. automatically maximized profits
- b. been operating at a loss
- c. minimized losses
- d. **shown a positive return to production**

61. Real estate taxes on a. property would be an example of:

- a. a direct cost
- b. **a fixed cost**
- c. a long term liability due
- d. a variable cost

62. Farmer Smith is looking to buy one quarter ($1/4$) section of farmland in the area. How many acres is Farmer Smith hoping to purchase?

- a. **160 acres**
- b. 200 acres
- c. 320 acres
- d. 640 acres

63. Which of the following would NOT be considered a risk management strategy for a farm?

- a. **Growing corn on all farm acres for the year.**
- b. Hedging livestock using the futures and options market.
- c. Locking in interest rates on long term loans
- d. Purchasing crop insurance for this year's production.
- e. All of the above are farm risk management strategies.

64. A farm that produces crops, some of which are sold and some of which are fed to the hog enterprise, would be considered a farm that has:

- a. **diversified**
- b. minimized losses
- c. niche production
- d. specialized

65. The price at which the owner of an option can buy or sell the underlying commodity is the:

- a. call price
- b. option price
- c. put price
- d. **strike price**

66. If ABC Farms sells \$20,000 of grain and uses the proceeds to pay off \$20,000 of operating debt (the operating loan), which of the following is true?
- a. The farm's net worth deteriorates (decreases).
 - b. The farm's working capital deteriorates (decreases).
 - c. The farm's working capital improves (increases)
 - d. The farm's working capital stays the same.**
67. The statement of cash flows provides information about which of the following ratio types?
- a. liquidity ratios
 - b. profitability ratios
 - c. repayment capacity ratios**
 - d. solvency ratios
 - e. all of the above
68. Which type of business ownership structure is easiest to form and provides the least personal protection?
- a. corporation
 - b. limited liability corporation
 - c. partnership
 - d. sole proprietor**
69. In marketing, basis is the difference between:
- a. the cash prices offered at two local markets
 - b. the futures price and the local cash price**
 - c. the futures price offered between two marketing months
 - d. the projected cost to produce the crop and the local cash price
70. A business owned by its customers or patrons is called a:
- a. cooperative**
 - b. corporation
 - c. joint venture
 - d. non-profit organization
71. A producer sells 8 feeder steers for \$71/cwt. The average weight per steer is 680 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. \$468.43
 - b. \$3,747.44**
 - c. \$3,765.84
 - d. \$3,844.00
 - e. none of the above

72. Wheat yields 45 bushels per acre and the price is \$3.50 per bushel. The price of canola is \$0.12 per pound. The cost of production is \$100 per acre for wheat and \$120 per acre for canola. What yield could be needed from canola to give the same net returns as wheat?
- a. 1,104 pounds
 - b. 1,312 pounds
 - c. 1,479 pounds**
 - d. 1,521 pounds
 - e. none of the above
73. 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 it will cost \$230 per head to bring them from the 675-pound purchase weight to the 1,100-pound selling weight. What is the highest price the operator can pay for the 675-pound feeder steers to break even?
- a. \$70.67/cwt.
 - b. \$73.48/cwt.**
 - c. \$78.15/cwt.
 - d. \$107.56/cwt.
 - e. none of the above
74. A soybean producer decides to store his soybeans in the local elevator for four months. The price at harvest is \$7.00 per bushel and the elevator charges 2 cents per bushel per month for storage plus a 5 cent per bushel handling charge. He has 5,000 bushels to sell and must borrow \$35,000 at 8.5% 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. \$7.13
 - b. \$7.20
 - c. \$7.33**
 - d. \$7.48
 - e. none of the above
75. A part-time farmer has 160 acres of land, 30 cows and can only work 400 hours per year on his farm. An acre of corn requires 3 hours of labor and yields 80 bushels. An acre of soybeans take 2.2 hours and yields 30 bushels. Each cow needs 7 hours of labor, 3 acres of land, and consumes 16 bushels of corn. What is the maximum number of acres of soybeans he can grow if the farmer keeps 30 cows and does not buy any corn?
- a. 64 acres**
 - b. 94 acres
 - c. 104 acres
 - d. 110 acres
 - e. none of the above

General Agriculture

76. Kansas is known as the "Breadbasket of the World" primarily due to its production of which crop?
- a. barley
 - b. cotton
 - c. oats
 - d. wheat**

77. Which grassland region is Kansas located in that is primarily used for cattle grazing?

- a. The Appalachian Mountains
- b. The Great Plains**
- c. The Rocky Mountains
- d. The Pacific Coast

78. What type of livestock is most commonly raised in Kansas?

- a. cattle**
- b. goats
- c. pigs
- d. sheep

79. Which of the following is a major challenge faced by farmers in Kansas?

- a. drought**
- b. excessive rainfall
- c. overpopulation
- d. pest infestations

80. Which technology has significantly impacted farming practices in Kansas in recent years?

- a. biotechnology**
- b. GPS navigation
- c. solar panels
- d. wind turbines

81. What is the primary source of irrigation for Kansas agriculture?

- a. groundwater (aquifers)**
- b. rainfall
- c. reservoirs
- d. rivers

82. Which variety of wheat is predominantly grown in Kansas that is prized for making bread?

- a. durum wheat
- b. hard red spring wheat
- c. hard red winter wheat**
- d. soft red winter wheat

83. The economic impact of agriculture in Kansas is largely influenced by its exports. What approximate percentage of Kansas agricultural production is typically exported?

- a. 15%
- b. 25%
- c. 50%**
- d. 75%

84. Kansas is home to a significant number of agricultural research institutions. Which one is known specifically for its work on plant science and agricultural genetics?
- a. Emporia State University
 - b. Fort Hays State University
 - c. Kansas State University**
 - d. University of Kansas
85. What is the term for the farming practices that emphasize the conservation of resources, soil health, and biodiversity, increasingly adopted by Kansas farmers?
- a. industrial agriculture
 - b. permaculture
 - c. precision farming
 - d. sustainable agriculture**
86. Which pest management strategy has become increasingly important for Kansas farmers dealing with crop damaging insects?
- a. chemical pesticides only
 - b. complete avoidance of chemical treatments
 - c. integrated pest management (IPM)**
 - d. organic pesticides exclusively
87. The average age of farmers in Kansas has been rising. What is the average age of a Kansas farmer as of recent assessments?
- a. 45 years
 - b. 55 years**
 - c. 60 years
 - d. 65 years
88. What is the Flint Hills region of Kansas primarily known for?
- a. major crops like corn and soybeans
 - b. mining and mineral extraction
 - c. tall grass prairie and cattle ranching**
 - d. urban development and technology
89. What is the primary reason why conservation programs are vital for Kansas farmers?
- a. to improve soil quality and prevent erosion**
 - b. to increase livestock numbers
 - c. to maximize crop prices
 - d. to reduce labor costs
90. The practice of “crop rotation” is particularly useful in Kansas agriculture for what reason?
- a. it guarantees higher yields of the same crop
 - b. it increases land value
 - c. it primarily promotes livestock farming
 - d. it reduces pest and disease pressure**

91. What significant event in Kansas history greatly influenced agricultural practices and land usage in the early 20th century?
- a. **The Dust Bowl**
 - b. The Great Depression
 - c. The Green Revolution
 - d. The Wheat Boom
92. Which crop is often rotated with wheat in Kansas for soil health and pest management purposes?
- a. corn
 - b. sorghum
 - c. **soybeans**
 - d. all of the above
93. Which farming method has gained popularity in Kansas as a water conservation technique in response to frequent drought?
- a. aquaculture
 - b. hydroponics
 - c. **no-till farming**
 - d. traditional farming
94. What is “precision agriculture”, and how is it applied in Kansas?
- a. farming without machinery
 - b. growing crops in urban areas
 - c. organic farming without fertilizers
 - d. **using technology to optimize field-level management**
95. The Kansas Agricultural Statistics Service collects and reports data on agricultural production. What specific type of data do they gather?
- a. **crop yields and livestock numbers**
 - b. economic trends in tourism
 - c. population demographics
 - d. weather patterns
96. How is climate change expected to influence agriculture in Kansas?
- a. a guaranteed increase in agricultural yield
 - b. decrease in pest populations
 - c. **higher temperatures leading to a shift in suitable crops**
 - d. increase in rainfall across all seasons
97. As of recent reports, what percentage of the United States wheat production is contributed by Kansas?
- a. 10%
 - b. **20%**
 - c. 30%
 - d. 40%

98. Who is the current U.S. Secretary of Agriculture?

- a. Ann Veneman
- b. Brooke Rollins**
- c. Sonny Perdue
- d. Tom Vilsack

99. Who is the current Kansas Secretary of Agriculture?

- a. David Heinemann
- b. Jack Oliver
- c. Kriste Johnston
- d. Mike Beam**

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

- a. Abraham Lincoln**
- b. Donald Trump
- c. George Washington
- d. Thomas Jefferson