2019 Louisiana State FFA Farm Business Management
Career Development Event

Name (Print) ____

Home Address (Print) ______________________________________

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Phone Number____

High School ____________________ **Team (Blue or Gold)** ______________

FFA Advisor ____________________ **Grade (Fall 2019)** ______________

2019 LOUISIANA STATE FFA FARM BUSINESS MANAGEMENT CAREER DEVELOPMENT EVENT

Administered by

Department of Agricultural Economics and Agribusiness
Louisiana State University Agricultural Center

TABLE OF CONTENTS

LOUISIANA STATE FFA FARM BUSINESS MANAGEMENT
CAREER DEVELOPMENT EVENT
2019
Part I – Short Multiple Choice Section
(100 Total Possible Points)

Select Best Answer Only

1. The relationship between quantity supplied and price is known as:
   a. Supply curve
   b. Demand curve
   c. Derived demand
   d. Direct marketing

2. Suppose that the supply curve shifts to the right. What is the most likely effect on price and quantity?
   a. Price will increase and quantity may change
   b. Price will decrease and quantity may decrease
   c. Price will decrease and quantity will increase
   d. Price will increase and quantity will increase

3. At a price of $15, Jim buys 3 CD's per month. When the price increases to $20, Jim buys 2 CD's per month. John says that Jim's demand for CD's has decreased. Is John correct?
   a. Yes, John is correct
   b. No, John is NOT correct. Jim's demand has increased.
   c. No, Jon is NOT correct. Jim's quantity demanded has increased, but his demand has stayed the same.
   d. No, John is NOT correct. Jim's quantity demanded has decreased, but his demand has stayed the same.

4. If the percentage change in quantity demanded is equal to the percentage change in price, demand is:
   a. Inelastic
   b. Unit elastic
   c. Elastic
   d. Perfectly elastic

5. The fewer the number of substitutes for a good, the:
   a. Lower its income elasticity of demand
   b. Higher its income elasticity of demand
   c. Lower its price elasticity of demand
   d. Higher is price elasticity of demand

6. Which of the following is NOT an assumption of the theory of perfect competition?
   a. Each firm produces and sells a differentiated product
   b. There are many sellers and buyers, none of which is large in relation to the total sales or purchases.
   c. Buyers and sellers have all relevant information with respect to prices
   d. There is easy entry and exit.

7. A monopoly may exit because:
   a. Government has refused to grant a public franchise
   b. The firm is so large and is currently experiencing such vast diseconomies of scale that it can out-compete all newcomers
   c. One firm has the exclusive ownership of a secure resource
   d. Both A and B

8. The profit maximizing quantity of output is where
   a. Demand equals supply
   b. Average total cost is at a minimum
   c. Price equals average variable cost
   d. Marginal revenue equals marginal cost

9. Pete's Burgers has fixed costs of $100. When Pete's Burgers makes 500 hamburgers, their variable costs are $100. When Pete's makes 600 hamburgers, their variable costs are $200. What is the average total cost when they are making 600 hamburgers and what is the marginal cost for the range between 500 and 600 hamburgers?
   a. ATC=$0.20 ; MC=$1.00
   b. ATC=$0.50 ; MC=$1.00
   c. ATC=$0.40 ; MC=$1.00
   d. ATC=$0.50 ; MC=$2.00

10. Grocery stores do not often advertise sales prices on table salt because:
   a. The demand for salt is elastic
   b. The demand for salt is unit elastic
   c. The demand for salt is inelastic
   d. The demand for salt is negative

11. In a market, the price where the demand curve and the supply curve intersect is known as this price:
    a. Equilibrium
    b. Ceiling
    c. Cross
    d. Own

12. Which of the following causes a movement along a given market demand curve for pork chops but does NOT shift the curve?
    a. Change in population
    b. Change in the price of hamburger, a substitute product
    c. Change in the supply of pork chops
    d. All of the above

13. Costs that do NOT change in the short run regardless of the output level for a firm are called:
    a. Opportunity costs
    b. Fixed costs
    c. Variable costs
    d. Perfectly elastic costs

14. The incremental cost to a wheat farmer of producing one more bushel of wheat is this type of cost:
    a. Opportunity
    b. Total
    c. Average Variable
    d. Marginal

15. A governmental price that is a minimum price that must be paid to sellers is called:
    a. A price ceiling
    b. A price floor
    c. A quota
    d. A salvage value

16. Average fixed cost is total fixed cost:
    a. Per year
    b. Minus total variable cost
    c. Per unit of output
    d. Divided by total cost

17. Five months ago, Wilson opened up a health club. Which of the following is an implicit cost related to the health club?
   a. Wilson paid $120 for an outside laundry service to clean towels used at the club.
   b. Wilson previously worked as an accountant earning $3,500 per month
   c. Wilson paid $100 for the pest control exterminator to spray the health club
   d. Wilson usually eats two hamburgers a day, priced at $6.00 each

18. At 200 units of output, total cost is $40,000 and total variable cost is $18,000. What does total fixed cost equal at 200 units?
   a. $22,000
   b. $200
   c. $110
   d. $90

19. The value of the US dollar can have a significant impact on the world market and impact the competitiveness of US grain exports. If the US dollar decreases in value relative to other currencies, what would be the expected impact on US corn and soybean prices in the world market?
   a. Would make corn and soybeans prices higher and make them more expensive to foreign buyers
   b. Would make corn and soybeans prices lower and make them more expensive to foreign buyers
   c. Would not change the prices of corn and soybeans to foreign buyers
   d. Would make corn and soybeans prices lower and make them less expensive to foreign buyers

20. The accounting method that records cash receipts when they are received and cash expenses when they are paid is known as:
   a. Cash method
   b. Real-Time method
   c. First in, first out method
   d. Accrual method

21. The law of diminishing returns (or diminishing marginal product) states which of the following will eventually decrease if a corn farmer keeps putting more fertilizer on a given acre of corn ground?
   a. Profit
   b. Revenue
   c. The additional corn yield per additional pound of fertilizer
   d. Net cash flow

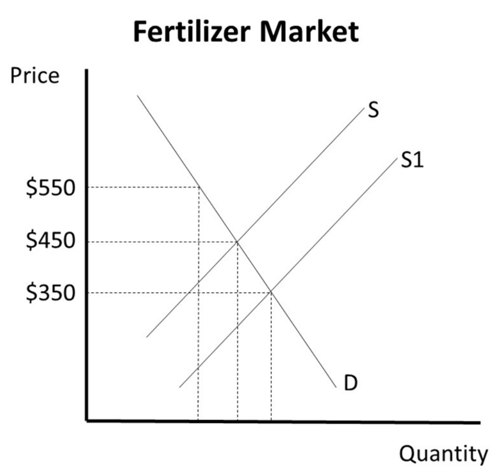
22. What is the management term used to describe an annual period of time used by a business to record income and expenses if that annual period does NOT correspond to a normal calendar year?
  a. Leap year
  b. Fiscal year
  c. Tax year
  d. Grace period

23. What is the future value in five years of $100 today if the annual interest rate is 6%?
  a. (100) (1.06)
  b. $(100)\ (1.05)^6$
  c. $(100)\ (1.06)^5$
  d. $(100)/(1.06)^5$

24. A governmental tax on imports is also called
  a. An embargo
  b. A trade quota
  c. A subsidy
  d. A tariff

25. Which of the following are equal if a firm is at a breakeven level of production?
  a. Total revenue and total cost
  b. Total assets and total liabilities
  c. Price and average variable costs
  d. Cash outflows and cash inflows

Use the following graph to answer questions 26-29



26. What is the equilibrium price for fertilizer under the original demand (D) and supply (S) curves?
   a. \$550
   b. \$450
   c. \$350
   d. Not enough information to determine

27. Which of the following would cause the supply curve to shift from the original curve (S) to the new curve (S1)?
   a. New technology that increases the efficiency in fertilizer production
   b. Increases in the prices of raw material used in making fertilizer
   c. Higher demand for fertilizer
   d. Adverse weather effecting crop production

28. What happens to the equilibrium quantity of fertilizer with the shift of the supply curve from S to S1?
   a. Equilibrium quantity decreases
   b. Equilibrium quantity stays unchanged
   c. Equilibrium quantity increases
   d. Not enough information to determine

29. Which of the following would occur at a market price of \$550?
   a. Equilibrium
   b. A surplus
   c. A shortage
   d. More demand than supply

30. At any point in time, a farm business has a positive net worth if:
   a. Net income is greater than zero
   b. Total assets are greater than zero
   c. Current assets minus current liabilities is greater than zero
   d. Total assets minus total liabilities is greater than zero

31. The annual rate of return earned by a farmer on his/her assets was 5%. Net earnings for the year were \$30,000. This implies:
   a. Total assets = \$150,00
   b. Equity = \$600,000
   c. Total assets = \$600,000
   d. Equity = \$150,000

32. Which of the following would be the best value to use for the cost of feeding homegrown (non-purchased) corn to beef cattle?
   a. Zero
   b. The cost of producing the corn
   c. The average of corn costs for 2 or 3 recent years
   d. The opportunity cost of the corn

33. A farmer recently sold a depreciable asset for $1500. The farmer had claimed $700 of depreciation between the times of purchasing and selling the asset. If the farmer reported a taxable realized gain of $200, at what price had the farmer originally purchased the asset?
   a. $2,000
   b. $2,400
   c. $1,000
   d. $1,300

34. Suppose a farmer's electricity expenses this year were $4,400 while the same costs last year were $4,000. What is the percentage increase in the cost of the electricity this year versus last year?
   a. 11%
   b. 9.1%
   c. 10%
   d. 8%

35. Which of the following farm firm decisions is more likely to impact the firm's total costs, rather than the firm's total revenues?
   a. What inputs to use
   b. What price to charge for the product
   c. How to market the product
   d. Who to sell the product to

36. Which of the following would most likely be considered a fixed cost?
   a. Purchased feed
   b. Machinery depreciation
   c. Seasonal labor
   d. Machinery repairs

37. Which of the following has happened for a farm firm whose current assets have increased more than current liabilities?
   a. Solvency has increased
   b. Net worth has increased
   c. Liquidity has increased
   d. Debt has increased

38. If a producer's debt-to-asset ratio decreases, the producer's
   a. Profitability has increased
   b. Net cash flow has decreased
   c. Long-term credit riskiness has decreased
   d. Total asset value has decreased

39. A grain farmer who rents land and does so with a crop-share lease agreement agrees to pay the land owner which of the following?
   a. A fixed cash payment per acre
   b. A variable cash payment per acre
   c. A percentage of the profits per acre
   d. A percentage of the harvested crop

40. A rice farmer is going to apply 28 ounces of a herbicide that costs $128.00 per gallon. If the custom application cost is $6.50 per acre, what is the producer's total cost of making this application?
   a. $28.00 per acre
   b. $34.50 per acre
   c. $6.50 per acre
   d. $51.50 per acre

41. A cattle producer can sell his calves that weigh 500 pounds now for $1.40 per pound or can hold them until they weigh 700 pounds and sell them for $1.20 per pound. If the cost of gain is estimated at $0.85 per pound, which of the following statements is true if the producer sells his calves at 700 pounds.
   a. The producer would make $140 more per head by selling at 700 pounds
   b. The producer would make $170 more per head by selling at 700 pounds
   c. The producer would have made $30 more per head by selling at 500 pounds
   d. The producer would have made $700 more per head by selling at 500 pounds

42. Assume a marginal income tax rate of 10% on the first $15,000 of income and 15% on the next $10,000 of income for Jim. How much income tax would Jim owe if he made $25,000 in income?
   a. $3,750
   b. $2,500
   c. $1,500
   d. $3,000

43. A producer has total production expenses for his cattle operation of $530 per adult cow. The producer is planning on selling all of his calves at weaning and is not retaining any calves as replacements. If the producer has an average weaning weight of 550 pounds and a 70 percent weaning percentage, what is his breakeven selling price for his calves?
   a. $0.96 per pound
   b. $1.38 per pound
   c. $137.66 per hundredweight
   d. Both b and c

44. A farmer is considering purchasing a half section of land. How many acres would that be?
   a. 320 acres
   b. 1,280 acres
   c. 1,600 acres
   d. 640 acres

45. A producer applies 200 pounds per acre of Triple Super Phosphate fertilizer to his crop. If the Triple Super Phosphate fertilizer has an analysis of 0%N, 46% P, and 0% K and cost $500 per ton, what was the producer's cost per acre and per pound of phosphorous applied?
   a. Cost is $50.00 per acre and $0.54 per pound of phosphorous applied
   b. Cost is $30.00 per acre and $0.65 per pound of phosphorous applied
   c. Cost is $30.00 per acre and $0.30 per pound of phosphorous applied
   d. Cost is $60.00 per acre and $1.00 per pound of phosphorous applied

46. How many bushels are contained in one futures contract for soybeans?
   a. 10,000 bushels
   b. 5,000 bushels
   c. 30,000 bushels
   d. There is no standardized number of bushels for soybean futures contracts

47. If cotton producer is expected to harvest in late October or early November and wants to hedge his crop, which contract would he use assuming he wants to sell the cotton shortly after harvest?
   a. March cotton futures contract
   b. July cotton futures contract
   c. October cotton futures contract
   d. December cotton futures contract

48. The current futures price for a December 2019 corn contract is $4.20 per bushel. Which of the following December 2019 corn put option strike prices would be considered “Out-of-the-Money”?
  a. Strike price of $4.20
  b. Strike price of $4.40
  c. Strike price of $3.80
  d. Strike price of $4.50

49. If the local cash price for corn is $4.30 per bushel while the nearby corn futures contract price is $4.10 per bushel, what is the basis?
  a. A negative $0.20 per bushel
  b. A positive $0.20 per bushel
  c. A positive $4.10 per bushel
  d. A negative $4.10 per bushel

50. A producer wants to hedge his soybean crop and sells a November 2019 soybean contract for $9.00 bushel in July 2019. The producer harvests the soybean and sells it at the local elevator in September 2019 for $8.50 per bushel and, at the same time, offsets his futures position. The November 2019 soybean contract was trading at $8.25 per bushel when the producer offset his futures position. How much did the producer gain or lose on his futures position?
  a. Producer loss $0.50 on his futures position
  b. Producer made $0.50 on his futures position
  c. Producer loss $0.75 on his futures position
  d. Producer made $0.75 per bushel on his futures position

PART II

PROBLEM SOLVING MULTIPLE CHOICE

150 Points

Complete all computations to two decimal places.
Please read questions carefully.

A. BUDGET ANALYSIS (45 Points)

A farmer in Louisiana has an operation which includes 1,500 acres (1,000 acres of corn and 500 acres of grain sorghum). Use the attached corn and grain sorghum budgets to answer questions 51 – 65.

51. Estimated total specified expenses for the 1,000 acres of corn are:
    a. $478,700 c. $435,710
    b. $275,590 d. $309,660

52. Estimated total specified expenses for the entire operation (corn and grain sorghum) are:
    a. $788,360 c. $633,530
    b. $573,505 d. $1,029,490

53. Estimated total amount of fuel (in gallons) used in corn production for the farm is:
    a. 5,331.8 c. 6,992
    b. 6.992 d. 1,660.2

54. What are the total estimated fertilizer costs (including lime) per acre for grain sorghum production?
    a. $82.10 c. $47.30
    b. $12.80 d. $94.64

55. What are the total estimated herbicide costs per acre for corn production?
    a. $39.55 c. $7.50
    b. $17.16 d. $4.00

56. What is the total estimated operating interest expense across the entire 1,500 acres of the operation?
    a. $13,840 c. $22,410
    b. $18,125 d. $31,860

57. What percentage of total direct expenses does seed costs represent for grain sorghum production?
    a. 26.58% c. 4.07%
    b. 4.57% d. 11.50%

58. What would the producer's corn drying costs if his yield per acre was 200 bushels?
    a. $22.50 c. $38.00
    b. $45.00 d. $75.00

59. How much actual pounds of nitrogen per acre is the producer applying to his corn crop?
   a. 180 lbs c. 60 lbs
   b. 30 lbs d. 270 lbs

60. What is the breakeven price per bushel needed to cover total specified expenses for grain sorghum production assuming a yield of 90 bushels per acre?
   a. \$0.23 c. \$2.44
   b. \$2.67 d. \$3.44

61. What would the breakeven price per bushel be if the producer wanted to generate returns that were 10 percent above total specified expenses for grain sorghum? (Assuming 90 bushels per acre yield)
   a. \$2.93 c. \$0.25
   b. \$3.78 d. \$3.30

62. Assuming a yield of 160 bushels and a price of \$4.50 per bushel, what would be the estimated per acre returns above total specified expenses for the corn crop?
   a. \$110.59 c. \$241.30
   b. \$720.00 d. \$204.83

63. Assuming a yield of 110 bushels, a price of \$4.00 per bushel, and a land rent on grain sorghum acres of 20% of the crop, what would be the estimated per acre returns above total specified expenses for the grain sorghum crop?
   a. \$42.34 c. \$76.41
   b. \$352.00 d. \$130.34

64. Assuming the prices, yields and land rent provided in Questions 62 and 63, what would be the estimated returns above total specified expenses for the entire 1,500 acre operation?
   a. \$241,300 c. \$21,170
   b. \$11,190 d. \$262,470

65. What percentage of the returns above total specified expenses estimated in Question 64 is associated with corn production?
   a. 10.96% c. 23.75%
   b. 91.93% d. 12.00%

B. LIVESTOCK ENTERPRISE ANALYSIS (21 Points)

A producer has a cow herd of 200 cows and had a weaning percentage of 70 percent. The breakdown of his calf crop was 60 percent steers and 40 percent heifers. The producer is keeping 20 of the weaned heifers for replacements. The weaned calves averaged 600 pounds. The producer can sell the calves at weaning for a price of $145 per hundredweight. If sold at weaning, the producer has estimated his total production costs to be $530 for each cow in his cow herd. However, given his views of current and future market conditions, he is thinking of retaining ownership of the calves through the feedlot. Retaining ownership will increase his costs but he is hoping that it might increase his profit level. He estimates that the costs of cattle while in the feedlot would be $0.80 per pound of gain. He also expects to have a 5 % death loss while in the feedlot and to be able to sell the cattle once they reach a market ready weight of 1,250 pounds for $120 per hundredweight. (Use this information to answer questions 66 – 72)

66. How many steers does the producer have available to sell at weaning?
  a. 120 c. 200
  b. 80 d. 84

67. What would be the producer's total costs if he sold the calves at weaning?
  a. $113,000 c. $106,000
  b. $141,250 d. $201,145

68. What would be the producer's profit/loss if he sold the calves at weaning?
  a. $1,600 profit c. $1,600 loss
  b. $45,000 profit d. $3,970 loss

69. How many animals would the producer have to sell once through the feedlot?
  a. 200 c. 250
  b. 133 d. 114

70. What would be the producer's total feedlot costs?
  a. $59,280 c. $255,490
  b. $114,240 d. $321,547

71. What would be the producer's total gross revenue generated if the calves are retained through the feedlot?
  a. $171,000.00 c. $452,796.75
  b. $487,765.25 d. $180,000.00

72. What would be the producer's profit/loss if he retained the calves through the feedlot?
  a. $60,000 profit c. $14,760 profit
  b. $5,720 profit d. $45,000 profit

C. PRE-HARVEST MARKETING HEDGE (12 Points)

A hedge can be used as a price risk management tool to lock-in a price for a commodity prior to marketing. Hedging prior to the selling date requires that the farmer be knowledgeable regarding the basis, defined as the difference between the local cash price and the futures market price closest to the date of selling the physical commodity.

Assume that Farmer Brown feels that soybean prices will decline prior to harvesting and marketing his soybeans in October and is considering using a pre-harvest marketing strategy. Farmer Brown is thinking about hedging either by selling a November 2019 futures contract or buying a November 2019 put option. Currently, the November 2019 futures contract is trading for $8.56 per bushel and a November 2019 put option with a $8.60 strike price is trading at $0.45 per bushel. It will cost Farmer Brown $0.02 per bushel in commission fees for either selling the futures contract or buying the put option. Farmer Brown expects the basis in October to be $0.30 above the futures price.

73. What is Farmer Brown's expected target price (expected selling price) for his soybeans if he sells the November 2019 futures contract?
    a. $8.56 / bu   c. $8.86 / bu
    b. $8.60 / bu   d. $8.84 / bu

74. What is Farmer Brown's expected target price (expected selling price) for his soybeans if he buys the November 2019 put option?
    a. $8.13 / bu   c. $8.43 / bu
    b. $8.15 / bu   d. $8.60 / bu

75. Assume that in October, Farmer Brown sells his soybean crop at the local elevator for $7.80 per bushel. On the day he sold the crop, the November 2019 futures contract was trading at $7.40 per bushel. What is Farmer Brown's net selling price for his soybeans if he hedged by selling the November 2019 futures contract?
    a. $8.00 / bu   c. $7.80 / bu
    b. $7.40 / bu   d. $8.94 / bu

76. Assume that in October, Farmer Brown sells his soybean crop at the local elevator for $7.80 per bushel. On the day he sold the crop, the November 2019 futures contract was trading at $7.40 per bushel and the November 2019 put option with a $8.60 strike price was trading at $1.22 per bushel. What would Farmer Brown's net selling price for his soybeans if he hedged by purchasing the November 2019 put option with a $8.60 strike price?
    a. $9.02 / bu   c. $8.55 / bu
    b. $7.40 / bu   d. $7.80 / bu

D. EQUIPMENT COST ANALYSIS (15 Points)

After several years of not growing cotton, Farmer John has planted 1,500 acres of cotton in response to better cotton prices. Farmer John must now decide which is going to be the best way of getting this 1,500 acres harvested. He has identified three alternatives which include purchasing a cotton picker, leasing a picker, or having someone custom harvest his cotton. He estimates that by purchasing picker, his annual fixed costs would be $52,000 and his annual variable costs (including labor) would be $29,200. Leasing the same machine would cost $300/hour and would have a field capacity of 3.1 acres per hour. If leasing the picker, Farm John would also incur labor and fuel costs. Farm John's labor cost is $10.30 per hour and his fuel costs is $2.50 per gallon. The picker uses 15 gallons of fuel per hour. Having the cotton custom harvested would cost Farmer John $0.12 per pound of lint. Farmer John expects his yields to average 1,100 pounds per acre. Please assist Farmer John in this decision by answering the following questions.

77. What is the total cost per acre associated with purchasing a picker to harvest the cotton?
    a. $54.13 / acre　　c. $67.50 / acre
    b. $28.33 /acre　　d. $81.67 / acre

78. What is the total cost per acre associated with leasing a picker to harvest the cotton?
    a. $96.77 / acre　　c. $100.10 / acre
    b. $300.00 / acre　　d. $112.19 / acre

79. What is the total cost per acre associated with having the cotton custom harvested?
    a. $132.00 / acre　　c. $86.67 / acre
    b. $99.75 / acre　　d. $98.45 / acre

80. Which alternative should Farmer John choose if all he is concerned about is cost per acre?
    a. Lease picker　　c. Buy/own the picker
    b. Custom harvest　　d. None of the above

81. What would Farmer John's custom harvest cost be per acre if he was able to find a neighbor who would custom harvest his cotton crop for $0.08 per pound of lint?.
    a. $100.00　　c. $90.00
    b. $132.00　　d. $88.00

E. FINANCIAL ANALYSIS (12 Points)

Use Farmer Thibodeaux's Net Worth Statement provided to answer questions 82 – 85.

FARMER THIBODEAUX'S NET WORTH STATEMENT

FARM ASSETS		FARM LIABILITIES	
Current Assets		Current Liabilities	
Checking, savings accounts	$10,000	Accounts payable	$18,500
Hedging accounts	$25,000	Farm taxes due	$9,450
Crops held for sale/feed	$350,000	Current notes and credit lines	$224,250
Prepaid Expenses	$15,000	Accured interest	$21,350
Accounts recievable	$12,000	Principal due on notes and contracts	$31,570
Total Current Assets	$412,000	Total Current Liabilities	$305,120
Non-Current Assets		Non-Current Liabilities	
Breeding Livestock	$200,500	Prinicipal due on notes and contracts	$723,540
Machinery & Equipment	$625,150	Other non-current liabilities	$225,000
Farmland	$350,750		
Buildings/Improvements	$425,000		
Farm Securities, certificates	$15,000		
Total Non-Current Assets	$1,616,400	Total Non-Current Liabilities	$948,540
Total Farm Assets		Total Farm Liabilities	
Farm Net Worth			
Working Capital			
Current Asset-to-Debt Ratio			
Total Debt-to-Asset Ratio			

82. What Farmer Thibodeaux's net worth?
   a. $1,616,400 c. $2,028,400
   b. $1,253660 d. $774,740

83. What is Farmer Thibodeaux's working capital?
   a. $15,453 c. $106,880
   b. $321,835 d. $304,395

84. What is Farmer Thibodeaux's current ratio?
   a. 1.43 c. 1.50
   b. 1.35 d. 1.75

85. What is Farmer Thibodeaux's debt-to-asset ratio?
   a. 0.47 c. 0.62
   b. 1.00 d. 1.25

F. INCOME STATEMENT ANALYSIS (15 Points)

You have been asked to prepare an income statement for 2019 for Smith's Nursery and Landscaping Company. Mr. Smith has provided you the following table to answer Questions 86 – 90.

Plant Sales	$300,000		Fuel Expenses	$35,000
Income Tax Expense	$50,000		Equipment Depreciation Expenses	$18,500
Cost of Goods Sold	$150,000		Accessories Sales	$17,500
Lawn Care Fee Income	$85,000		Rent	$15,000
Hourly Labor Expense	$75,000		Insurance	$36,000
Advertising Expense	$15,000		Landscape Fee Income	$82,000
Soil Sales	$27,000		Fertilizer Sales	$32,000

86. What is the total income for the revenue section of the income statement?
    a. $300,000 c. $393,500
    b. $105,000 d. $543,500

87. What are the total operating (variable) expenses?
    a. $125,000 c. $75,000
    b. $105,000 d. $90,000

88. What are the total fixed expenses?
    a. $51,000 c. $69,500
    b. $15,000 d. $36,000

89. What is net income (after taxes)?
    a. $149,000 c. $270,000
    b. $268,500 d. $300,000

90. What is the depreciation expense ratio (depreciation divided by gross revenue)?
    a. 0.04 c. 0.08
    b. 0.05 d. 0.09

G. LOAN AMORTIZATION SCHEDULE (15 Points)

An agricultural producer purchases equipment that he is financing over ten years, making an annual payment in December each year. The producer was able to secure an APR (annual percentage rate) of 8.0%. Complete the following loan amortization schedule by selecting the value that is missing from the table.

Year	Beginning Balance	Annual Payment	Interest Payment	Principal Payment	Ending Balance
1	$150,000.00	???	$12,000.00	$10,354.42	$139,645.58
2	$139,645.58	$22,354.42	$11,171.65	$11,182.78	$128,462.80
3	$128,462.80	$22,354.42	$10,277.02	$12,077.40	$116,385.40
4	$116,385.40	$22,354.42	$9,310.83	$13,043.59	$103,341.81
5	$103,341.81	$22,354.42	???	???	$89,254.73
6	$89,254.73	$22,354.42	$7,140.38	$15,214.04	$74,040.69
7	$74,040.69	$22,354.42	$5,923.25	$16,431.17	$57,609.52
8	???	$22,354.42	$4,608.76	$17,745.66	$39,863.86
9	$39,863.86	$22,354.42	$3,189.11	$19,165.31	$20,698.54
10	$20,698.54	$22,354.42	$1,655.88	$20,698.54	$0.00

91. What is the amount of total payment in year 1?
 a. $15,000.00 c. $12,000.00
 b. $10,354.42 d. $22,354.42

92. In which year does the portion of the payment applied to the principal first exceed the interest payment?
 a. Year 2 c. Year 5
 b. Year 6 d. Year 20

93. What is the amount of interest paid in year 5?
 a. $13,043.59 c. $8,267.34
 b. $22,354.42 d. $21,118.86

94. What is the amount of principal paid in year 5?
 a. $14,087.08 c. $7,140.38
 b. $22,354.42 d. $21,118.86

95. What is the principal balance at the beginning of year 8?
 a. $74,040.69 c. $39,863.86
 b. $23,354.42 d. $57,609.52

H. MARGINAL ANALYSIS (15 Points)

The following data relates to the use of nitrogen fertilizer in the production of corn. Address the following economic relationships assuming the cost of nitrogen is $0.42 per pound and the price of a bushel of corn is $4.50 per bushel. It is recommended you fill in all the blanks in the table before attempting to answer the questions.

Pounds of Nitrogen (Input)	Bushels of Corn (Output)	Total Variable Cost	Toal Fixed Cost	Total Cost	Marginal Cost	Total Revenue	Marginal Revenue
0	50	$0.00	$35.00	$35.00		$225.00	
					$0.42		$4.50
50	100	$21.00	$35.00	$56.00		$450.00	
100	130	$42.00	$35.00	$77.00		$585.00	
150	160			$98.00		$720.00	
200	175		$35.00	$119.00		$787.50	
250	179	$105.00	$35.00	$140.00		$805.50	
							$4.50
300	182	$126.00	$35.00	$161.00			

96. What is the marginal revenue when 150 pounds of nitrogen is used?
   a. $0.42 c. $4.50
   b. $560.00 d. $720.00

97. What is the marginal cost when going from 100 to 150 pounds of nitrogen?
   a. $2.00 c. $0.42
   b. $0.70 d. $98.00

98. What is the total revenue when using 300 pounds of nitrogen?
   a. $805.50 c. $161.00
   b. $819.00 d. $137.00

99. What are the net returns when using 250 pounds of nitrogen?
   a. $140.00 c. $665.50
   b. $60.00 d. $805.50

100. How many pounds of fertilizer maximizes profit for the producer?
   a. Exactly 150 c. Between 200 and 250
   b. Exactly 250 d. Between 150 and 200

Table 1.A Estimated costs per Acre
Corn, RR, 8-Row Equipment, 38 inch rows, non-irrigated,
Alluvial Soil, Louisiana, 2019.

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars dollars		dollars dollars	
DIRECT EXPENSES					
CUSTOM SPRAY					
App by Air (5 gal)	appl	6.50	4.0000	26.00	________
App by Air (3 gal)	appl	5.00	1.0000	5.00	________
GIN/DRY					
Dry Corn	bu	0.19	160.0000	30.40	________
FERTILIZERS					
LA Phosphate	lb	0.55	30.0000	16.50	________
LA Potash	lb	0.32	60.0000	19.20	________
LA Nitrogen	lb	0.43	180.0000	77.40	________
HERBICIDES					
Glyphosate Plus 4L	pt	2.00	2.0000	4.00	________
2,4-D Amine 4	pt	2.31	1.0000	2.31	________
Valor WP	oz	4.38	1.0000	4.38	________
Roundup WeatherMax	oz	0.26	66.0000	17.16	________
Atrazine 4L	pt	1.50	5.0000	7.50	________
Select 2EC	oz	0.70	6.0000	4.20	________
INSECTICIDES					
Karate Z	oz	1.02	2.1300	2.17	________
Intrepid 2F	oz	1.80	6.0000	10.80	________
Baythroid 2	oz	2.30	2.1300	4.90	________
SEED/PLANTS					
Corn Seed RR	thous	3.13	32.0000	100.16	________
CUSTOM FERT/LIME					
Lime (Spread)	ton	38.00	0.3300	12.54	________
CUSTOM HARVEST/HAUL					
Haul Corn	bu	0.23	160.0000	36.80	________
OPERATOR LABOR					
Harvesters	hour	13.51	0.1344	1.82	________
LA Hired Labor					
Implements	hour	10.73	0.1611	1.73	________
Tractors	hour	10.73	0.5819	6.23	________
DIESEL FUEL					
Tractors	gal	2.50	5.3318	13.32	________
Harvesters	gal	2.50	1.6602	4.15	________
REPAIR & MAINTENANCE					
Implements	Acre	8.08	1.0000	8.08	________
Tractors	Acre	2.86	1.0000	2.86	________
Harvesters	Acre	2.26	1.0000	2.26	________
INTEREST ON OP. CAP.	Acre	13.84	1.0000	13.84	________
TOTAL DIRECT EXPENSES				435.71	________
FIXED EXPENSES					
Implements	Acre	13.65	1.0000	13.65	________
Tractors	Acre	19.61	1.0000	19.61	________
Harvesters	Acre	9.73	1.0000	9.73	________
TOTAL FIXED EXPENSES				42.99	________
TOTAL SPECIFIED EXPENSES				478.70	________

Table 1.A Estimated costs per Acre
Grain Sorghum, 8-row equipment, 38 inch rows, non-irrigated, Northeast Louisiana, 2019.

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
DIRECT EXPENSES					
CUSTOM SPRAY					
App by Air (5 gal)	appl	6.50	1.5000	9.75	________
App by Air (3 gal)	appl	5.00	2.0000	10.00	________
FERTILIZERS					
LA Nitrogen	lb	0.43	110.0000	47.30	________
LA Phosphate	lb	0.55	40.0000	22.00	________
LA Potash	lb	0.32	40.0000	12.80	________
FUNGICIDES					
Quadris	oz	1.56	6.0000	9.36	________
HERBICIDES					
Roundup WeatherMax	oz	0.26	55.0000	14.30	________
2,4-D Amine 4	pt	2.31	2.0000	4.62	________
Atrazine 4L	pt	1.50	4.0000	6.00	________
Dual II Magnum	pt	14.50	1.0000	14.50	________
INSECTICIDES					
Karate Z	oz	1.02	2.1300	2.17	________
Belt	oz	7.00	2.5000	17.50	________
Transform	oz	7.81	1.0000	7.81	________
Sivanto	oz	2.50	4.0000	10.00	________
SEED/PLANTS					
Sorghum Concept	lb	2.10	6.0000	12.60	________
CUSTOM FERT/LIME					
Lime (Spread)	ton	38.00	0.3300	12.54	________
CUSTOM HARVEST/HAUL					
Haul Sorghum	bu	0.25	100.0000	25.00	________
OPERATOR LABOR					
Harvesters	hour	13.40	0.0851	1.14	________
LA Hired Labor					
Implements	hour	10.73	0.1190	1.28	________
Tractors	hour	10.73	0.4011	4.30	________
DIESEL FUEL					
Tractors	gal	2.50	3.4993	8.74	________
Harvesters	gal	2.50	1.2047	3.01	________
REPAIR & MAINTENANCE					
Implements	Acre	5.49	1.0000	5.49	________
Tractors	Acre	2.02	1.0000	2.02	________
Harvesters	Acre	2.79	1.0000	2.79	________
INTEREST ON OP. CAP.	Acre	8.57	1.0000	8.57	________

TOTAL DIRECT EXPENSES				275.59	________
FIXED EXPENSES					
Implements	Acre	8.25	1.0000	8.25	________
Tractors	Acre	13.80	1.0000	13.80	________
Harvesters	Acre	12.02	1.0000	12.02	________

TOTAL FIXED EXPENSES				34.07	________

TOTAL SPECIFIED EXPENSES				309.66	________

2019 FFA Farm Business Management CDE - Answer Key

Question	Answer		Question	Answer		Question	Answer		Question	Answer		Question	Answer
1	A		21	C		41	C		61	B		81	D
2	C		22	B		42	D		62	C		82	D
3	D		23	C		43	D		63	A		83	C
4	B		24	D		44	A		64	D		84	B
5	C		25	A		45	A		65	B		85	C
6	A		26	B		46	B		66	D		86	C
7	C		27	A		47	D		67	C		87	A
8	D		28	C		48	C		68	A		88	C
9	B		29	B		49	B		69	D		89	A
10	C		30	D		50	D		70	A		90	B
11	A		31	C		51	A		71	A		91	D
12	C		32	D		52	C		72	B		92	A
13	B		33	A		53	C		73	D		93	C
14	D		34	C		54	D		74	C		94	A
15	B		35	A		55	A		75	D		95	D
16	C		36	B		56	B		76	C		96	C
17	B		37	C		57	B		77	A		97	B
18	A		38	C		58	C		78	D		98	B
19	D		39	D		59	A		79	A		99	C
20	A		40	B		60	D		80	C		100	C