2018 Louisiana State FFA Farm Business Management
Career Development Event

Name (Print) _____

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2018 LOUISIANA STATE FFA FARM BUSINESS MANAGEMENT CAREER DEVELOPMENT EVENT

Administered by

Department of Agricultural Economics and Agribusiness
Louisiana State University Agricultural Center

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LOUISIANA STATE FFA FARM BUSINESS MANAGEMENT
CAREER DEVELOPMENT EVENT
2018
Part I – Short Multiple Choice Section
(100 Total Possible Points)

Select Best Answer Only

1. Which financial statement reports farm revenues minus farm operating and financial expenses over an accounting period?
   a. Balance sheet
   b. Statement of owner equity
   c. Statement of cash flows
   d. Income statement

2. The original cost basis of an asset plus the cost of any improvements or alterations that extends the life of the asset less accumulated depreciation or depletion on the asset is referred to as the:
   a. Adjusted basis or cost value of the asset
   b. Net market value of the asset
   c. Total amortization value of the asset
   d. The cost of the asset

3. A management tool where a person compares two different production options or practices, and then compares estimated income and expenses to identify the better option or practice is a/an:
   a. Cash flow projection
   b. Enterprise budget
   c. Partial budget
   d. Whole farm budget

4. A statement of projected costs and returns associated with one's production process, usually for one production period, is called the:
   a. Income statement
   b. Enterprise budget
   c. Partial budget
   d. Profit and Loss statement

5. When a farmer increases his investment in land, buildings, and equipment without increasing the total units of production, his cost per unit:
   a. Remains the same
   b. Decreases
   c. Increases
   d. Varies from farmer to farmer

6. Which of the following is an opportunity cost of farming your own land?
   a. Equipment cost
   b. Potential rent
   c. Input cost
   d. Labor cost

7. The law of demand states that, holding other things constant:
   a. As price rises, demand will rise
   b. As price falls, quantity demanded declines
   c. As price rises, supply will fall
   d. As price falls, quantity demanded rises

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

9. The principal on a loan taken out by a producer is
   a. The present value of the loan
   b. The amount of the loan plus interest that still needs to be paid
   c. The lender
   d. The amount of money borrowed by the producer

10. If a producer decided to plant more acres of rice this year, which of the following costs would likely change the most?
   a. Crop insurance cost per acre
   b. Land rent per acre
   c. Fixed cost per acre
   d. Labor cost per acre

11. Costs that do NOT change in the short run regardless of the output level are called
   a. Fixed cost
   b. Opportunity cost
   c. Variable cost
   d. Perfectly elastic cost

12. Which of the following marketing alternatives eliminates all risk of prices and basis levels changing in the future?
    a. Selling Futures Contracts
    b. Obtaining a Cash Forward Contract
    c. Selling at Harvest
    d. Selling Futures Options

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

14. If a soybean producer is expected to harvest in late October and wants to hedge his crop, which contract would he use assuming he plans to store his soybeans until December.
    a. March soybeans futures contract
    b. November soybeans futures contract
    c. January soybeans futures contract
    d. September soybeans futures contract

15. The current futures price for a December 2018 corn contract is $4.25 per bushel. Which of the following December 2018 corn put option strike prices would be considered "In-the-Money"?
    a. Strike Price of $4.50
    b. Strike Price of $5.00
    c. Strike Price of $4.00
    d. Strike Price of $6.00

16. The difference between the futures price of a commodity and the cash price of that same commodity is referred to as the:
    a. Basis
    b. Bid price
    c. Marketing margin
    d. Market quotation

17. If a local cash price for rice is currently $11.00 per hundredweight while the nearby rice futures contract price is $11.50 per hundredweight, what is the basis?
    a. A positive $0.50 per hundredweight
    b. A negative $0.50 per hundredweight
    c. A positive $11.00 per hundredweight
    d. A positive $0.25 per hundredweight

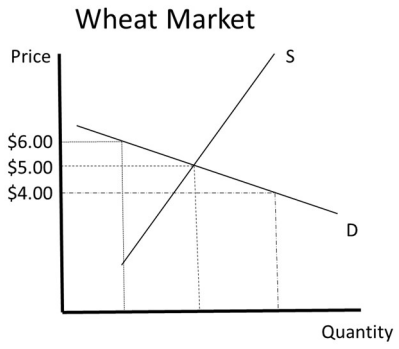
18. Production functions show:
    a. The profit maximization point
    b. Revenue and expenses
    c. The cost of the next best alternative
    d. The relationship between inputs and outputs

19. Which of the following could reduce production risk?
    a. Crop insurance
    b. Crop diversification
    c. Irrigation
    d. All of the above

20. Which of the following is true about a monopoly?
    a. Many close substitutes
    b. Price taker
    c. Produces a differentiated product
    d. Many different sellers

21. Which type of market is characterized by many sellers, price-takers, and homogenous products?
    a. Perfect competition markets
    b. Monopolistic competition markets
    c. Oligopoly markets
    d. Monopoly markets

Use the following graph to answer questions 21-23



22. What is the equilibrium price for wheat?
    a. $6.00
    b. $4.00
    c. $5.00
    d. $5.50

23. The price elasticity of demand for price is
    a. Inelastic
    b. Elastic
    c. Unitary
    d. Not enough information to determine

24. Which of the following would occur at a market price of $4.00?
    a. A shortage
    b. Equilibrium
    c. A surplus
    d. More supply than demand

25. If hamburgers and hot dogs are substitute goods, an increase in the price of hamburgers will cause:
    a. The demand for hot dogs to increase and the equilibrium price to decrease
    b. The demand for hot dogs to decrease and the equilibrium price to decrease
    c. The demand for hot dogs to decrease and the equilibrium price to increase
    d. The demand for hot dogs to increase the equilibrium price to increase

26. A debt obligation that must be paid within one year is known as a:
    a. Current asset
    b. Intermediate liability
    c. Long term liability
    d. Current liability

27. If a farmer keeps adding fertilizer to an acre of rice ground, the additional rice yield per additional pound of fertilizer applied will eventually decline. This is an example of the "Law of _____"
    a. Demand
    b. Supply
    c. Diminishing marginal utility
    d. Diminishing marginal product

28. Hurricanes and other adverse weather conditions would be an example of which of the 5 major areas of farm risk?
    a. Financial Risk
    b. Production Risk
    c. Marketing Risk
    d. Legal Risk

29. What are the two basic accounting methods for recording income and expenses?
    a. Fixed and Variable
    b. First in first out and Last in last out
    c. After tax and Before tax
    d. Cash and Accrual

30. Which of the following is an example of a noncurrent liability?
    a. Farm Machinery
    b. Loan on Feeder Livestock
    c. Loan on Farm Machinery
    d. Prepaid Expense

31. Which of the following measures is NOT a measure of profitability?
    a. Rate of Return on Equity
    b. Return to Labor and Management
    c. Net Farm Income
    d. Debt to Asset Ratio

32. Which of the following would NOT appear on a cash flow budget?
    a. Feed Purchases
    b. Depreciation
    c. Family Living Expenses
    d. Cost of a New Tractor

33. In the short run, a farmer should go ahead and produce an enterprise as long as the expected revenue exceeds:
    a. Total Variable Costs
    b. Total Fixed Costs
    c. Gross Margin
    d. Total Costs

34. The difference between the futures price of a commodity and the cash price of that same commodity is referred to as the:
    a. Basis
    b. Bid price
    c. Marketing margin
    d. Market quotation

35. A rice farmer is going to apply 1.5 pints of a herbicide that costs $240.00 per gallon. If the custom application cost is $6.50 per acre, what is the producer's total cost of making this application?
    a. $30.00 per acre
    b. $6.50 per acre
    c. $45.00 per acre
    d. $51.50 per acre

36. A cattle producer can sell his calves that weigh 500 pounds now for $1.50 per pound or can hold them until they weigh 700 pounds and sell them for $1.30 per pound. If the cost of gain is estimated at $0.75 per pound, which of the following statements is true if the producer sells his calves at 700 pounds.
    a. The producer would make $10 more per head by selling at 700 pounds
    b. The producer would make $160 more per head by selling at 700 pounds
    c. The producer would have made $160 more per head by selling at 500 pounds
    d. The producer would have made $750 more per head by selling at 500 pounds

37. Mary can buy a house taking out a loan. Her monthly payment would be $800, which include mortgage interest and property taxes that are tax deductible. After taking taxes into consideration, the cost of the house per month is likely to be:
    a. $800
    b. Greater than $800 by the amount of the mortgage interest
    c. Less than $800 by the amount of the property taxes
    d. Less than $800 by the amount of the tax savings associated with the mortgage interest and property taxes

38. A producer has total production expenses for his cattle operation of $500 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 500 pounds and an 80 percent weaning percentage, what is his breakeven selling price for his calves?
    a. $1.25 per pound
    b. $1.00 per pound
    c. $125 per hundredweight
    d. Both a and c

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

40. A producer wants to apply the recommended amount of 150 pounds of nitrogen per acre to his crop. If the producer is going to apply Urea that has an analysis of 46% N, 0% P, and 0% K, how many pounds of Urea would he need to apply per acre to apply at least the desired amount of nitrogen?
    a. 150 pounds of Urea
    b. 200 pounds of Urea
    c. 350 pounds of Urea
    d. 250 pounds of Urea

41. A producer applies 100 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 $600 per ton, what was the producer's cost per acre and per pound of phosphorous applied?
    a. Cost is $60.00 per acre and $0.65 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

42. A farmer obtains an operating loan for $500,000 on January 1, 2018. If the farmer repays the loan on December 31, 2018 and pays a total of $525,000, what annual interest rate did his lender charge?
    a. 4.25%
    b. 5.67%
    c. 5.00%
    d. 10.41%

43. A farming operation has assets of $1,500,000 and total liabilities of $700,000. What is this farming operations debt to equity ratio?
    a. 0.47
    b. 0.88
    c. 2.14
    d. 0.53

44. A farming operation has total liabilities of $500,000 and total assets of $1,000,000. What is this farming operation's net worth (equity) assets?
    a. $750,000
    b. $1,250,000
    c. $500,000
    d. $1,000,000

45. A farming operation has total liabilities of $750,000 and a net worth (equity) of $100,000. What is this farming operation's debt to asset ratio?
    a. 1.50
    b. 0.88
    c. 1.25
    d. 0.50

46. A producer purchases a tractor for $200,000. The producer believes the tractor will have a useful life of 8 years. He also believes that the tractor will have a salvage value of 25 percent its original purchase price at the end of those 8 years. If the producer uses straight line method of depreciation, what is the annual depreciation value for this combine?
    a. $25,000
    b. $6,250
    c. $18,750
    d. $34,471

47. Principle payments on debt would be included on which financial statement(s)?
    a. Balance Statement
    b. Accrual Income Statement
    c. Statement of Cash Flows
    d. Enterprise Budget

48. An asset's cost minus the asset's accumulated depreciation would equal the asset's
    a. Basis
    b. Book value
    c. Market value
    d. Net worth

49. Mr. Smith is crawfish producer who is considering opening a processing facility to sell both live crawfish and tail meat to both wholesalers and direct to consumers. This would be an example of:
    a. Diversification
    b. Horizontal integration
    c. Speculation
    d. Vertical integration

50. A line-of-credit loan to purchase farm inputs is referred to as:
    a. An operating loan
    b. A mortgage
    c. A consumer loan
    d. A long-term loan

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 3,000 acres (1,000 acres of corn and 2,000 acres of soybeans). Use the attached corn and soybean budgets to answer questions 51 – 65.

51. Estimated total specified expenses for the 1,000 acres of corn are:
    a. $414,410
    b. $453,160
    c. $38,750
    d. $45,316

52. Estimated total specified expenses for the entire operation (corn and soybeans) are:
    a. $793,970
    b. $1,068,240
    c. $1,187,780
    d. $1,029,490

53. Estimated total amount of fuel (in gallons) used in corn production for the farm is:
    a. 4,061.2
    b. 5.2659
    c. 12,006.25
    d. 5,265.9

54. What are the total estimated fungicide costs per acre for soybean production?
    a. $15.96
    b. $15.63
    c. $31.59
    d. $6.63

55. What are the total estimated herbicide costs per acre for corn production?
    a. $17.16
    b. $7.50
    c. $40.35
    d. $37.30

56. What is the total estimated operating interest expense across the entire 3,000 acres of the operation?
    a. $23,350
    b. $23,250
    c. $50,610
    d. $31,860

57. What percentage of total direct expenses does seed costs represent for corn production?
    a. 26.58%
    b. 0.67%
    c. 24.17%
    d. 11.50%

58. What would the producer's soybean seeding costs be for seed if he increased his seeding rate to 75 pounds per acre?
    a. $22.50
    b. $45.00
    c. $97.50
    d. $75.00

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

60. What is the breakeven price per bushel needed to cover total specified expenses for corn production assuming a yield of 170 bushels per acre?
    a. $0.23
    b. $2.67
    c. $2.44
    d. $3.00

61. What would the breakeven price per bushel be if the producer wanted to generate returns that were 10 percent above total specified expenses? (Assuming 170 bushels per acre yield)
    a. $2.93
    b. $2.68
    c. $0.25
    d. $3.30

62. Assuming a yield of 150 bushels and a price of $3.50 per bushel, what would be the estimated per acre returns above total specified expenses for the corn crop?
    a. $110.59
    b. $525.00
    c. $71.84
    d. $129.48

63. Assuming a yield of 45 bushels, a price of $11.00 per bushel, and a land rent on soybean acres of 20% of the crop, what would be the estimated per acre returns above total specified expenses for the soybean crop?
    a. $19.19
    b. $28.79
    c. $11.19
    d. $40.00

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 3,000 acre operation?
    a. $94,220
    b. $11,190
    c. $71,840
    d. $129,420

65. What percentage of the returns above total specified expenses estimated in Question 64 is associated with corn production?
    a. 10.96%
    b. 55.51%
    c. 23.75%
    d. 12.00%

B. LIVESTOCK ENTERPRISE ANALYSIS (21 Points)

A producer has a cow herd of 400 cows and had a weaning percentage of 80 percent. The breakdown of his calf crop was 55 percent steers and 45 percent heifers. The producer is keeping 20 of the weaned heifers for replacements. The weaned calves averaged 500 pounds. The producer can sell the calves at weaning for a price of $150 per hundredweight. If sold at weaning, the producer has estimated his total production costs to be $450 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 $0.85 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 $115 per hundredweight. (Use this information to answer questions 66 – 72)

66. How many calves does the producer have available to sell at weaning?
    a. 400 c. 320
    b. 250 d. 300

67. What would be the producer's total costs if he sold the calves at weaning?
    a. $113,000 c. $180,000
    b. $141,250 d. $201,145

68. What would be the producer's profit/loss if he sold the calves at weaning?
    a. $1,750 profit c. $1,750 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. 192 d. 285

70. What would be the producer's total feedlot costs?
    a. $191,250 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. $409,687.50 c. $452,796.75
    b. $487,765.25 d. $431,250

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. $38,437.50 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 2018 futures contract or buying a November 2018 put option. Currently, the November 2018 futures contract is trading for $10.50 per bushel and a November 2017 put option with a $10.60 strike price is trading at $0.58 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 2018 futures contract?
    a. $10.50 / bu
    b. $10.20 / bu
    c. $10.80 / bu
    d. $10.78 / bu

74. What is Farmer Brown's expected target price (expected selling price) for his soybeans if he buys the November 2018 put option?
    a. $10.60 / bu
    b. $9.92 / bu
    c. $10.30 / bu
    d. $10.32 / bu

75. Assume that in October, Farmer Brown sells his soybean crop at the local elevator for $11.00 per bushel. On the day he sold the crop, the November 2018 futures contract was trading at $10.80 per bushel. What is Farmer Brown's net selling price for his soybeans if he hedged by selling the November 2018 futures contract?
    a. $11.00 / bu
    b. $11.28 / bu
    c. $10.68 / bu
    d. $11.30 / bu

76. Assume that in October, Farmer Brown sells his soybean crop at the local elevator for $11.00 per bushel. On the day he sold the crop, the November 2018 futures contract was trading at $10.80 per bushel and the November 2018 put option with a $10.60 strike price was trading at $0.02 per bushel. What would Farmer Brown's net selling price for his soybeans if he hedged by purchasing the November 2018 put option with a $10.60 strike price?
    a. $11.00 / bu
    b. $11.02 /bu
    c. $10.42 / bu
    d. $10.00 bu

D. EQUIPMENT COST ANALYSIS (15 Points)

After several years of not growing cotton, Farmer Smith has planted 1,200 acres of cotton in response to better cotton prices. Farmer Smith must now decide which is going to be the best way of getting this 1,200 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 $80,000 and his annual variable costs (including labor) would be $30,000. Leasing the same machine would cost $300/hour and would have a field capacity of 5.8 acres per hour. Farmer Smith's labor cost is $10.30 per hour. Having the cotton custom harvested would cost Farmer Smith $0.10 per pound of lint. Mr. Smith expects his yields to average 900 pounds per acre. Please assist Mr. Copland 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. $91.67 / acre
    b. $28.33 /acre
    c. $67.50 / acre
    d. $81.67 / acre

78. What is the total cost per acre associated with leasing a picker to harvest the cotton?
    a. $88.71 / acre
    b. $125.00 / acre
    c. $92.74 / acre
    d. $53.51 / acre

79. What is the total cost per acre associated with having the cotton custom harvested?
    a. $90.00 / acre
    b. $99.75 / acre
    c. $86.67 / acre
    d. $98.45 / acre

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

81. Farmer Smith trusts your judgement and is leaning toward the option you suggested in Question 80. Which of the following might change Farmer Smith's mind on which option to utilize.
    a. The dealer has offered a lower interest rate on the picker Farmer Smith is looking to buy.
    b. The price of diesel is increased by $0.10 per gallon and is expected to rise another $0.15 per gallon.
    c. Farmer Smith is forced to increase his hourly wage rate to $13.00 to keep his workers.
    d. The price of cotton is falling and is expected to continue to fall for the next couple of years forcing Farmer Smith to consider not planting any cotton for the next few years.

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	$25,000	Accounts payable	$7,500
Hedging accounts	$43,135	Farm taxes due	$6,440
Crops held for sale/feed	$235,700	Current notes and credit lines	$250,065
Prepaid Expenses	$10,000	Accured interest	$18,245
Accounts recievable	$8,000	Principal due on notes and contracts	$22,145
Total Current Assets	$321,835	Total Current Liabilities	$304,395
Non-Current Assets		Non-Current Liabilities	
Breeding Livestock	$325,000	Prinicipal due on notes and contracts	$625,000
Machinery & Equipment	$543,000	Other non-current liabilities	$110,000
Farmland	$150,000		
Buildings/Improvements	$875,000		
Farm Securities, certificates	$10,000		
Total Non-Current Assets	$1,903,000	Total Non-Current Liabilities	$735,000
Total Farm Assets		Total Farm Liabilities	
Farm Net Worth			
Working Capital			
Current Asset-to-Debt Ratio			
Total Debt-to-Asset Ratio			

82. What Farmer Boudreaux's net worth?
    a. $2,302,279
    b. $1,185,440
    c. $1,104,316
    d. $1,731,600

83. What is Farmer Boudreaux's working capital?
    a. $15,453
    b. $321,835
    c. $17,440
    d. $304,395

84. What is Farmer Boudreaux's current ratio?
    a. 1.43
    b. 1.06
    c. 1.50
    d. 1.75

85. What is Farmer Boudreaux's debt-to-asset ratio?
    a. 0.47
    b. 1.00
    c. 0.52
    d. 1.25

F. INCOME STATEMENT ANALYSIS (15 Points)

You have been asked to prepare an income statement for 2018 for Guillory's Nursery and Landscaping Company. Mr. Guillory has provided you the following table to answer Questions 86 – 90.

Plant Sales	$450,000		Fuel Expenses	$28,000
Income Tax Expense	$75,000		Equipment Depreciation Expenses	$10,000
Cost of Goods Sold	$295,000		Accessories Sales	$32,000
Lawn Care Fee Income	$125,000		Rent	$10,000
Hourly Labor Expense	$90,000		Insurance	$37,000
Advertising Expense	$27,000		Landscape Fee Income	$110,000
Soil Sales	$35,000		Fertilizer Sales	$15,000

86. What is the total income for the revenue section of the income statement?
    a. $450,000 c. $472,000
    b. $105,000 d. $767,000

87. What are the total operating (variable) expenses?
    a. $145,000 c. $75,000
    b. $105,000 d. $68,000

88. What are the total fixed expenses?
    a. $55,000 c. $57,000
    b. $15,000 d. $30,000

89. What is net income (after taxes)?
    a. $195,000 c. $270,000
    b. $275,000 d. $300,000

90. What is the depreciation expense ratio (depreciation divided by gross revenue)?
    a. 0.04 c. 0.08
    b. 0.02 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 6.0%. 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	$250,000.00	???	$15,000.00	$18,966.99	$231,033.01
2	$231,033.01	$33,966.99	$13,861.98	$20,105.01	$210,928.00
3	$210,928.00	$33,966.99	$12,655.68	$21,311.31	$189,616.69
4	$189,616.69	$33,966.99	$11,377.00	$22,589.99	$167,026.70
5	$167,026.70	$33,966.99	???	???	$143,081.32
6	$143,081.32	$33,966.99	$8,584.88	$25,382.11	$117,699.21
7	$117,699.21	$33,966.99	$7,061.95	$26,905.04	$90,794.17
8	???	$33,966.99	$5,447.65	$28,519.34	$62,274.83
9	$62,274.83	$33,966.99	$3,736.49	$30,230.50	$32,044.33
10	$32,044.33	$33,966.99	$1,922.66	$32,044.33	($0.00)

91. What is the amount of total payment in year 1?
   a. $15,000.00
   b. $37,223.47
   c. $18,966.99
   d. $33,966.99

92. In which year does the portion of the payment applied to the principal first exceed the interest payment?
   a. Year 1
   b. Year 6
   c. Year 5
   d. Year 20

93. What is the amount of interest paid in year 5?
   a. $17,393.56
   b. $19,829.91
   c. $10,021.60
   d. $21,118.86

94. What is the amount of principal paid in year 5?
   a. $23,945.39
   b. $19,829.91
   c. $37,223.47
   d. $21,118.86

95. What is the principal balance at the end of year 8?
   a. $89,420.99
   b. $45,715.16
   c. $78,241.47
   d. $90,794.17

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 $0.34 per pound and the price of a bushel of corn is $3.50 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		$175.00	
					$0.34		$3.50
50	100	$17.00	$35.00	$52.00		$350.00	
100	130	$34.00	$35.00	$69.00		$455.00	
150	160			$86.00		$560.00	
200	175		$35.00	$103.00		$612.50	
250	179	$85.00	$35.00	$120.00		$626.50	
							$3.50
300	182	$102.00	$35.00	$137.00			

96. What is the marginal revenue when 150 pounds of nitrogen is used?
    a. $0.40
    b. $560.00
    c. $3.50
    d. $712.00

97. What is the marginal cost when going from 100 to 150 pounds of nitrogen?
    a. $2.00
    b. $0.57
    c. $0.34
    d. $10.00

98. What is the total revenue when using 300 pounds of nitrogen?
    a. $720.00
    b. $637.00
    c. $724.00
    d. $137.00

99. What is the fixed costs when using 150 pounds of nitrogen?
    a. $75.00
    b. $60.00
    c. $35.00
    d. $660.00

100. How many pounds of fertilizer maximizes profit for the producer?
    a. Exactly 150
    b. Exactly 250
    c. Between 200 and 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, 2018.

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		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	0.40	30.0000	12.00	
LA Potash	lb	0.26	60.0000	15.60	
LA Nitrogen	lb	0.34	180.0000	61.20	
HERBICIDES					
Glyphosate Plus 4L	pt	1.75	2.0000	3.50	
2,4-D Amine 4	pt	1.85	1.0000	1.85	
Valor WP	oz	6.38	1.0000	6.38	
Roundup WeatherMax	oz	0.26	66.0000	17.16	
Atrazine 4L	pt	1.50	5.0000	7.50	
Select 2EC	oz	0.66	6.0000	3.96	
INSECTICIDES					
Karate Z	oz	3.40	2.1300	7.24	
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	46.00	0.3300	15.18	
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	10.38	0.1611	1.67	
Tractors	hour	10.38	0.5819	6.05	
DIESEL FUEL					
Tractors	gal	2.28	5.3318	12.16	
Harvesters	gal	2.28	1.6602	3.79	
REPAIR & MAINTENANCE					
Implements	Acre	7.65	1.0000	7.65	
Tractors	Acre	2.89	1.0000	2.89	
Harvesters	Acre	2.26	1.0000	2.26	
INTEREST ON OP. CAP.	Acre	10.49	1.0000	10.49	

TOTAL DIRECT EXPENSES				414.41	
FIXED EXPENSES					
Implements	Acre	11.66	1.0000	11.66	
Tractors	Acre	18.16	1.0000	18.16	
Harvesters	Acre	8.93	1.0000	8.93	

TOTAL FIXED EXPENSES				38.75	

TOTAL SPECIFIED EXPENSES				453.16	

Table 1.A Estimated costs per Acre
Soybeans, RR, 8-row equipment, stale seedbed, non-irrigated, alluvial soils, Northeast Louisiana, 2018.

ITEM	UNIT	PRICE	QUANTITY	AMOUNT	YOUR FARM
		dollars		dollars	
DIRECT EXPENSES					
CUSTOM SPRAY					
App by Air (5 gal)	appl	6.50	3.0000	19.50	
App by Air (3 gal)	appl	5.00	5.0000	25.00	
HARVEST AIDS					
Gramoxone Inteon	oz	0.26	16.0000	4.16	
FERTILIZERS					
LA Phosphate	lb	0.40	50.0000	20.00	
LA Potash	lb	0.26	50.0000	13.00	
FUNGICIDES					
Quadris	oz	1.56	6.0000	9.36	
Stratego	pt	25.00	0.6250	15.63	
HERBICIDES					
Roundup WeatherMax	oz	0.26	66.0000	17.16	
2,4-D Amine 4	pt	1.85	1.0000	1.85	
Valor WP	oz	6.38	2.0000	12.76	
Dual II Magnum	pt	14.50	1.0000	14.50	
Flexstar HL	pt	4.50	1.0000	4.50	
INSECTICIDES					
Brigade EC	pt	8.75	0.7500	6.56	
Prevathon	oz	1.32	16.0000	21.12	
Besiege	oz	1.90	10.0000	19.00	
Surfactant	pt	1.63	1.0000	1.63	
SEED/PLANTS					
Soybean Seed RR	lb	1.30	50.0000	65.00	
CUSTOM FERT/LIME					
Lime (Spread)	ton	46.00	0.3300	15.18	
CUSTOM HARVEST/HAUL					
Haul Soybeans	bu	0.27	45.0000	12.15	
OPERATOR LABOR					
Harvesters	hour	13.51	0.0851	1.15	
LA Hired Labor					
Implements	hour	10.38	0.1345	1.39	
Tractors	hour	10.38	0.4272	4.44	
DIESEL FUEL					
Tractors	gal	2.28	4.0612	9.26	
Harvesters	gal	2.28	1.2047	2.75	
REPAIR & MAINTENANCE					
Implements	Acre	4.78	1.0000	4.78	
Tractors	Acre	2.22	1.0000	2.22	
Harvesters	Acre	2.91	1.0000	2.91	
INTEREST ON OP. CAP.	Acre	6.38	1.0000	6.38	

TOTAL DIRECT EXPENSES				333.34	
FIXED EXPENSES					
Implements	Acre	8.39	1.0000	8.39	
Tractors	Acre	14.00	1.0000	14.00	
Harvesters	Acre	11.48	1.0000	11.48	

TOTAL FIXED EXPENSES				33.87	

TOTAL SPECIFIED EXPENSES				367.21	

2018 FFA Farm Business Management CDE - Answer Key

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