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Chapter _____

2004 STATE FINAL
FLORIDA FFA FARM BUSINESS
MANAGEMENT CONTEST
PART II--PROBLEM SOLVING

200 Points

2 Hours

Answer each question directly on this test paper. **Carry all calculations to 2 decimals.**

You should receive a package with 9 exhibits that are part of the contest. Your contest booklet should have 7 numbered pages of questions (including this page). There are 33 questions and each correct answer is worth 6 points. Partial credit may be given, so be certain to show your work. You may use a calculator.

The budgets provided for this test include all costs except the costs of overhead, risk and management (including the manager's labor contribution). The difference between specified costs and total receipts is called "returns to overhead, risk and management" and is frequently abbreviated as "returns to ORM".

For each question make only those assumptions specified for that question. Unless explicitly specified, assumptions do not "carry forward" from one question to the next.

All Federal Income Tax related questions in this contest are based on tax rules as specified in the IRS Farmer's Tax Guide for 2003 returns which you should receive with this contest.

Prepared by
Drs. Evan Drummond & Richard Weldon
Department of Food & Resource Economics
University of Florida
Gainesville, FL 32611-0240
(352) 392-1826, ext 212 and 216

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Questions 1-17 refer to the cost of equipment and enterprise budgets in Exhibits 1-6. These budgets were prepared by Mr. Timothy Hewitt, an economist in the Food & Resource Economics Department, University of Florida. Unless otherwise directed, ignore the change in “interest on cash expenses” associated with additional or reduced cash expenses.

1. How many hours would it take to plow 40 acres with a 135hp tractor using a moldboard plow?

$$0.24 * 40 = 9.60 \text{ hours}$$

2. What is the total cost of using a large combine to harvest 80 acres of soybeans?

$$0.098 * 80 = 7.84 \text{ hrs}$$

$$7.84 * (22.40 + 82.40) = \$821.63$$

3. George harvested 56 bu/acre of dryland corn. What is his breakeven price on total costs?

$$\$236.00 / 56 = \$4.21/\text{bu}$$

4. The current price of corn is \$3.08/bu. At this price what is the breakeven yield on total costs?

$$\$236 / 3.08 = 76.62 \text{ bu.}$$

5. The dryland corn budget is based on what size combine?

Medium

6. Jorge has 40 acres of dryland corn and 60 acres of soybeans. What are his total costs.

$$(40 * 236.00) + (60 * 213.81) = \$22,268.60$$

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7. Jorge (see #6) gets 60 bu/acre from his corn and the current corn price is \$3.10. If he gets 35 bu/acre from soybeans, what is the breakeven (for the entire operation) price of soybeans?

$$(40*(60*3.10-236.00)) + (60*(35*x-213.81)) = 0$$

$$x = \$7.06$$

8. The cotton budget includes a \$6.00 per acre scouting fee. What is this for?

For a professional to inspect the fields for insect or disease damage.

9. Ted has 600 acres of cotton. How many tons of nitrogen fertilizer should he buy?

$$(600 * 80) / 2000 = 24.00 \text{ tons}$$

10. The cotton budget includes \$70.00 per acre for “ginning”. What is ginning?

Separating the seed from the lint.

Questions 11-14 are based on the following information is for the 900 acres Miguel farms:

	Acres	Yield	Price
Cotton	400	725 lb/acre	\$0.80 per lb.
Peanuts	500	3700 lb/acre	\$0.20 per lb

11. What are Miguel’s total receipts?

$$(400 * 725 * 0.80) + (500 * 3700 * 0.20) = \$602,000.00$$

12. Based on the budgets, how much interest does Miguel pay?

$$(400 * 23.04) + (500 * 27.94) = \$23,186.00$$

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13. What is Miguel's total return to ORM?

$$\$602,000.00 - (400 * 538.77) - (500 * 726.04) = \$23,472.00$$

14. What are Miguel's total costs for his pick-up truck?

$$(400 * (8.00 + 8.50)) + (500 * (6.40 + 6.80)) = \$13,200.00$$

15. Farmer Rusty owns 200 acres on which he grows peanuts. What is Rusty's opportunity cost of the land per acre?

\$40.00 per acre

16. Joy grows cotton. If she owns her land and uses family labor instead of hired labor, what are her interest expenses per acre?

$$(460.74 - (40.00 + 17.50)) * 0.05 = \$20.16$$

17. Gary currently grows 200 acres of peanuts. His yield is 4,200 lbs/acre and he receives a price of \$0.20/lb. If he switched to cotton yielding 620 lbs/acre at a price of \$0.70/lb, by how much would his total return to ORM change?

$$\text{ORM peanuts: } (200 * (4200 * 0.20) - 726.04) = \$22,792.00$$

$$\text{ORM cotton: } (200 * (620 * 0.70) - 538.77) = \$-20,954.00$$

$$\text{Change: } \$-43,746.00$$

Questions 18-23 deal with financial analysis. Each problem can be solved using the financial tables presented in Exhibits 7 and 8.

18. What is the present value of \$600.00 to be received 6 years from now using a discount rate of 6%?

$$600.00 * 0.704961 = \$422.98$$

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19. If \$200.00 is deposited in a bank account that earns 4% compounded annually, how much will the account be worth at the end of 10 years?

$$200.00 * 1.480244 = \$296.05$$

20. How much must be deposited annually to an account that earns 6% per annum to generate \$150,000 at the end of 20 years?

$$150000 * 0.027185 = \$4,077.75$$

21. Mary bought some land for \$400,000. She paid 20% down and took out a 30 year mortgage on the remainder. The interest rate on the mortgage is 6%. How much are the annual payments on this mortgage?

$$(0.8 * 400,000) * 0.072649 = \$23,247.68$$

22. Gary's grandfather promises to pay Gary \$500 per year for each of the next 10 years. Using a discount rate of 4%, what is the present value of the grandfather's promise?

$$500 * 8.110896 = \$4,055.45$$

23. Every year David puts \$1,200 into an account that is earning 4% per annum. How much will be in that account at the end of 15 years?

$$1200 * 20.023588 = \$24,028.31$$

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Questions 24-27 are based on the net worth statement for the Brown farm shown in Exhibit 9.

24. What was the Brown's net worth at the end of 2003?

$$1,211,500 - 668,000 = \$543,500.00$$

25. What was the Brown's current ratio at the end of 2003?

$$47,500 / 86,000 = 0.55$$

26. What major change in their operations did the Browns make in 2003?

Bought additional land

27. What was the Brown's debt/equity ratio at the end of 2002?

$$275,000 / (880,000 - 275,000) = 0.45$$

Questions 28-33 concern federal taxes. For all questions the IRS publication Farmers Tax Guide is the definitive source of information. A copy of the relevant portions of the Tax Guide will be provided with the contest.

28. Mr. Johnson bought a new combine in September, 2003 and immediately placed it in service. He paid \$220,000 for the combine. If he takes advantage of the full section 179 deduction and the special depreciation allowance, what will be his basis for calculating depreciation under MACRS.

Basis:	\$220,000
(-) 179 deduction	\$100,000
(=)available for special depreciation	\$120,000
(-) 50% special depreciation	\$ 60,000
(=) depreciation in MACRS	\$ 60,000

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29. Mr. Garcia bought a new pick-up truck for his farm in October, 2003. He paid \$37,000 for the truck. How much of a depreciation deduction under section 179 and the special depreciation allowance can he claim?

\$11,010 (page 57, FTG)

30. In February, 2003 John bought a computer system for \$5,000. He elects not to use section 179 and the special depreciation allowance and to depreciate all of it using mid-year, GDS/MACRS. How much depreciation on his computer will he report on his 2004 tax return?

25.50% of \$5,000 = \$1,275.00

31. In November, 2003 Sam placed in service a new hog barn (single purpose) that cost him \$600,000. If Sam takes full advantage of section 179 and the special depreciation allowance and depreciates the remaining basis using GDS/MACRS, how much MACRS depreciation will he claim on his 2003 return? [Assume that the hog barn is his only depreciable expense in 2003]

This property does not qualify for section 179. He uses the 50% special depreciation allowance, so his MACRS basis is \$300,000. He must use mid-quarter convention.

Full year depreciation: $(\$300,000 * 150\%) / 10 = \$45,000$
He can only claim 1.5 months so $\$45,000 * (1.5/12) = \$5,625.00$

32. In July, 2003 Ruth bought \$10,000 worth of equipment for a sawmill she owns in Belize. How much depreciation can she claim on her 2003 return?

Must use ADS, straight line, mid-year. 6 year recovery.

$\$10,000/6 = \$1,666.67$
 $\frac{1}{2}$ of that is \$833.33

33. In 1992 Sue bought 100 shares of IBM stock for \$25.00 per share. In August, 2003 she sold the 100 shares at \$42.00 per share. How much capital gains tax will she pay on her 2003 return?

capital gains: $(42.00 - 25.00) * 100 = \$1,700$
taxed at 15%: $0.15 * 1,700 = \$255.00$

END OF PART II