Farm Planning and Budgeting

A. Circle the best answer. Put a square around your second choice if you want. Half-credit is given for second choice, no penalty. 

(4 points each)

1. A mission statement is a:
   a. short summary of why a business or organization exists
   b. set of business goals, including a timeline for completion
   c. comprehensive plan to reshape the farm business over the next decade
   d. list of important jobs to be accomplished in the near future

2. Strategic management refers to:
   a. deciding what tasks need to be accomplished first each day
   b. setting an overall course for the farm business
   c. carrying out specific steps to implement a chosen strategy
   d. planning short-term credit needs

3. In a crop enterprise budget, the total cost per bushel and the breakeven selling price to cover total costs are the same only when:
   a. there is only one source of revenue
   b. there is more than one source of revenue
   c. expected gross revenue is less than total costs
   d. by coincidence, only

4. The most profitable level at which to apply inputs such as seed, fertilizer or irrigation water can be found by:
   a. the point at which the maximum yield is achieved
   b. the point at which the total cost per bushel is just equal to the selling price
   c. the last point at which the marginal revenue earned from adding more input is equal to or greater than the marginal cost of the added input
   d. the first point at which the marginal revenue earned from adding more input is less than the marginal cost of the additional input

5. One characteristic of agriculture that causes decision-making to be different than in other industries is:
   a. production processes are very consistent and predictable
   b. the supply of all major resources can be increased if there is a demand for them
   c. the owners of the business often supply labor and management, as well
   d. a small number of large businesses produce nearly all of the output
6. **Variable costs** are those costs that:
   a. change from one production cycle to the next
   b. occur even if an enterprise is not carried out
   c. are hardest to predict
   d. increase or decrease in direct proportion to the number of units of an enterprise that are carried out

7. An enterprise budget for the establishment phase of a perennial crop typically does **not** include:
   a. gross revenue
   b. variable costs
   c. fixed costs
   d. labor costs

8. What other type of budget must be developed before a **whole farm** budget can be completed?
   a. cash flow
   b. enterprise
   c. partial
   d. long-run

9. Fixed costs for farm machinery include all of the following except:
   a. depreciation
   b. property insurance premiums
   c. custom hire charges
   d. lease payments

10. A **partial budget** is used to estimate:
    a. variable costs, but not fixed costs
    b. the profitability of just one enterprise
    c. costs of production, but not revenue
    d. the net effect on profits from making one management change

11. Cash flow budgets are useful for all of the following **except**:
    a. projecting either a cash surplus or a cash deficit for each period within a year
    b. projecting net farm income for the year and each period
    c. projecting how much operating credit will be needed in each period within the year
    d. planning which months major loan payments should come due
B. Answer briefly.

12. List two different ways of calculating the cost of land in a crop enterprise budget. **(4 points)**

a. 

b. 

13. List two important differences between an enterprise budget for a breeding livestock enterprise and one for a feeding livestock enterprise. **(4 points)**

a. 

b. 

14. The “weighted average cost of capital” is calculated as an average of what two rates? **(4 points)**

a. 

b. 

15. Marginal revenue is the product of ______________ x ______________: **(4 points)**

a. 

b. 
C. Show your work.

16. Robin is considering buying a new self-propelled windrower. Details are:
   • purchase cost $36,000
   • expected ownership period 8 years
   • expected salvage value after 8 years $12,000
   • cost of capital 7%
   • insurance and housing rate 1%

   a. How much would Robin’s average annual ownership costs be over the 8-year period? Show your work for each type of cost. (9 points)

   Depreciation

   $__________________

   Interest

   $__________________

   Insurance, housing

   $__________________

   Total $__________________
17. Should Robin give up her summer job that pays her $500 per week for 12 weeks to do custom windrowing? 
   - She estimates she can do 1,500 acres for the summer 
   - Typical custom rate charge is $10 per acre 
   - Fuel and repair costs are estimated at $1.00 per acre 
   - She won’t have to commute to her other job at a cost of $50 per week.

Use the partial budgeting format below to estimate the net change on her personal net income. Include ownership costs from question 16. **Label your work.**

<table>
<thead>
<tr>
<th>Increased Income</th>
<th>Reduced Income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reduced Costs</th>
<th>Increased Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Net Change = $________

What is the minimum number of acres she would need to contract for, to just break even? Show your work.

________________ acres
18. Use the following information to construct a Whole Farm Budget for Milky Way farm. Label each revenue or cost using the budget form below. **Note:** All corn silage and hay are fed to the dairy cows rather than sold.  

(13 points)

<table>
<thead>
<tr>
<th>Enterprise</th>
<th>Corn Silage</th>
<th>Hay</th>
<th>Dairy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit</td>
<td>1 acre</td>
<td>1 acre</td>
<td>1 cow</td>
</tr>
<tr>
<td>Production per year</td>
<td>20 tons/a.</td>
<td>5 tons/a.</td>
<td>20,000 lbs.</td>
</tr>
<tr>
<td>Selling price</td>
<td>None</td>
<td>None</td>
<td>$15 per cwt.</td>
</tr>
<tr>
<td>Other income</td>
<td>None</td>
<td>None</td>
<td>$300/cow</td>
</tr>
<tr>
<td>Variable costs per year</td>
<td>$200/a.</td>
<td>$150/a.</td>
<td>$1,500/cow</td>
</tr>
<tr>
<td>Number of units</td>
<td>40</td>
<td>120</td>
<td>100</td>
</tr>
</tbody>
</table>

**Whole Farm**

- Revenue from USDA payments, doing custom work $15,000
- Property taxes and insurance 5,000
- Depreciation 12,000
- Interest on long-term loans 18,000
- Hired labor wages 60,000
- Value of operator unpaid labor (12 mo. @ $2,500) 30,000
- Value of equity capital ($300,000 @ 5%) 15,000

**Gross Revenue**

Subtotal $__________

**Variable Costs**

Subtotal $__________

**Fixed Costs**

Subtotal $__________

Net farm income $__________

Profit and return to management $__________
Farm Planning and Budgeting

A.
1. a
2. b
3. a
4. c
5. c
6. d
7. a
8. b
9. c
10. d
11. b

B.
12. a. What the land could be cash rented for.
   b. Land value x % return on investment + property taxes and maintenance costs.

13. a. Breeding budgets have revenue from the sale of cull females.
   b. Breeding budgets must account for the cost of replacement females, or reduce sales for retained breeding stock. Feeding budgets include the cost of a feeder animal.

14. a. Interest rate on borrowed capital (loans).
   b. Interest that could have been earned on equity capital (opportunity cost).

15. a. Marginal product.
   b. Selling price of the product.

C.
16. a. Depreciation: \( \frac{(36,000 - 12,000)}{8} = \frac{24,000}{8} = $3,000 \)

   Interest: \( \frac{36,000 + 12,000}{2} = $24,000 \) average value \( $24,000 \) x 7% = $1,680

   Insurance, housing: \( $24,000 \) x 1% = $240

   Total: \( $3,000 + $1,680 + $240 = $4,920 \)

17. | Increased Income      | Reduced Income          |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>$10/acre x 1,500 acres = $15,000</td>
<td>$500/week x 12 weeks = $6,000</td>
</tr>
<tr>
<td>Reduced Costs</td>
<td>Increased Costs</td>
</tr>
<tr>
<td>$50/week x 12 weeks = $600</td>
<td>Ownership costs = $4,920</td>
</tr>
<tr>
<td></td>
<td>Variable costs $1 x 1,500 acres = $1,500</td>
</tr>
</tbody>
</table>

| Net Change | = $15,000 + $600 - $6,000 - $4,920 - $1,500 = $3,180 |

\[ A = \text{breakeven costs} \]
\[ $10A + 600 - 6,000 - 4,920 - $1A = 0 \]
\[ 9A = 10,320 \]
\[ A = 10,320/9 = 1,146 \]

Answer: 1,146 acres
### Gross Revenue

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk sales: 20,000 lb. x $15/cwt x 100 cows =</td>
<td>$300,000</td>
</tr>
<tr>
<td>Other revenue: $300 x 100 cows =</td>
<td>$30,000</td>
</tr>
<tr>
<td>USDA, custom work</td>
<td>$15,000</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>$345,000</strong></td>
</tr>
</tbody>
</table>

### Variable Costs

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silage: $200 x 40 a. =</td>
<td>$8,000</td>
</tr>
<tr>
<td>Hay: $150 x 120 a. =</td>
<td>$18,000</td>
</tr>
<tr>
<td>Dairy: $1,500 x 100 cows =</td>
<td>$150,000</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>$176,000</strong></td>
</tr>
</tbody>
</table>

### Fixed Costs

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property taxes and insurance</td>
<td>$5,000</td>
</tr>
<tr>
<td>Depreciation</td>
<td>12,000</td>
</tr>
<tr>
<td>Interest</td>
<td>18,000</td>
</tr>
<tr>
<td>Wages</td>
<td>60,000</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>$95,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net farm income</td>
<td>$74,000</td>
</tr>
<tr>
<td>Operator labor</td>
<td>30,000</td>
</tr>
<tr>
<td>Return on equity</td>
<td>15,000</td>
</tr>
<tr>
<td><strong>Profit and return to management</strong></td>
<td><strong>$+29,000</strong></td>
</tr>
</tbody>
</table>