Farm Business Management

A. Circle the correct answer. Put a square around your second choice, if you wish (half credit). (4 pts each)

1. Which of the following risk management tools protects against production risk?
   a. Spraying crops with herbicide
   b. Buying PUT options
   c. Buying liability insurance
   d. Leasing machinery

2. Which type of marketing tool is similar to buying “price insurance?”
   a. Selling with a forward contract
   b. Buying PUT options
   c. Hedging by selling a futures contract
   d. Buying an APH crop insurance policy

3. “Lifting a hedge” involves:
   a. Selling a futures contract
   b. Buying a futures contract
   c. Selling a PUT option
   d. Buying a PUT option

4. Which type of crop insurance provides the most risk protection for a crop farmer who usually forward contracts a high percentage of the crop prior to harvest?
   a. Actual Production History (APH)
   b. Revenue Assurance (standard)
   c. Crop revenue coverage or RA-harvest option
   d. Catastrophic

5. A cumulative distribution function shows the probability of:
   a. Achieving a certain result
   b. Not achieving a certain result
   c. Achieving a certain result or higher
   d. Achieving a certain result or lower

6. Which of the pricing tools available to farmers does not carry any basis risk?
   a. Forward contract
   b. Futures contract
   c. PUT option
   d. CALL option
7. A farmer whose actual harvested yield is lower than the bushels guaranteed by an APH crop insurance policy will receive an indemnity payment equal to bushels of loss times the:
   a. Average futures price in February
   b. Average futures price in October
   c. USDA projected market price for that year
   d. 10-year average market price

8. Current assets on a farm net worth statement are those:
   a. That have been acquired or produced in the past 12 months
   b. That will be sold or used up in the next 12 months
   c. That the farm business owns on the date of the statement
   d. That are in the form of cash or a bank account

9. The statement of owner’s equity summarizes:
   a. The income earned and expenses incurred during the accounting period
   b. How net worth changed during the accounting period
   c. The owner’s assets and liabilities on a certain date
   d. The farm and nonfarm cash inflows and cash outflows during the accounting period

10. The degree to which a farm’s assets adequately back up or exceed its liabilities is called:
    a. Solvency
    b. Profitability
    c. Liquidity
    d. Efficiency

11. The Chart of Accounts in a farm accounting system consists of:
    a. A list of unpaid bills to dealers and suppliers
    b. A diagram of the various fields on the farm
    c. A diagram of the lines of authority on the farm
    d. A list of income, expense, asset and liability categories

12. The “law of diminishing marginal returns” explains why:
    a. As more and more of a product is produced the price eventually declines
    b. As the principal portion of a loan is paid off, the interest cost decreases
    c. As farms increase in size, average costs per unit of product decline
    d. As the level of an input used increases, the level of product produced also increases, but at a declining rate

13. The purpose of writing a mission statement for a farm business is to:
    a. Help employees know what to do when the manager is away
    b. Comply with federal labor laws
    c. Describe the purpose for which the business exists
    d. Identify the strengths and weaknesses of the business
14. Sources of **Owner Equity** for a farm business include all the following except:
   a. Loans received to purchase capital assets
   b. Earnings retained from net farm income
   c. Assets contributed when the business started
   d. Assets inherited from relatives

B. Answer as indicated. Show your work if you want to receive partial credit.

15. You have 10,000 bushels of soybeans stored in your own bins. You could sell them now (mid-October) for $5.50 per bushel and use the money to pay down the balance on your operating credit line, which has a balance of $75,000 accruing interest at an annual rate of 8 percent. However, your neighbor says the price of soybeans is sure to go up by April.

   a. How much interest cost could you save by selling your soybeans now instead of in mid-April?

   $__________________ (3)

   b. What is the minimum price per bushel you would need to sell for in April to just cover the extra interest cost plus $.05 per bushel for electricity and handling?

   $ __________ per bushel (3)

   c. You can forward contract the soybeans for delivery to the local elevator in April for $6.00 per bushel. You can also hedge them by selling two futures contracts at $6.40 per bushel. If the **basis** for soybeans in April is normally $.30 per bushel, what price would you expect to net by hedging?

   $ __________ per bushel (3)
d. Compare the riskiness of:
   1) Waiting and selling for the cash price in April
   2) Forward contracting for April delivery
   3) Hedging, for sale in April

16. Happy Valley Farm summarized all their cash transactions for the past year to show to their lender. (5 points)

<table>
<thead>
<tr>
<th>Cash In</th>
<th>Cash Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop sales</td>
<td>$41,000</td>
</tr>
<tr>
<td>Livestock sales</td>
<td>$20,000</td>
</tr>
<tr>
<td>USDA payments</td>
<td>5,000</td>
</tr>
<tr>
<td>Lottery prize won</td>
<td>6,000</td>
</tr>
<tr>
<td>Money borrowed for land</td>
<td>12,000</td>
</tr>
<tr>
<td></td>
<td>Seed, fertilizer, etc.</td>
</tr>
<tr>
<td>Livestock feed, health</td>
<td>11,000</td>
</tr>
<tr>
<td>Purchase of feeder lambs</td>
<td>5,000</td>
</tr>
<tr>
<td>Purchase of land</td>
<td>15,000</td>
</tr>
<tr>
<td>Family living</td>
<td>7,000</td>
</tr>
<tr>
<td>Payments on farm loans-principal</td>
<td>20,000</td>
</tr>
<tr>
<td>Payments on farm loans-interest</td>
<td>11,000</td>
</tr>
<tr>
<td>Total</td>
<td>$90,000</td>
</tr>
<tr>
<td></td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td>$89,000</td>
</tr>
</tbody>
</table>

Answer the following. Show your work.

a. By how much did their cash on hand increase from the beginning of the year to the end?

   $ \underline{\phantom{0}} \text{(3)}$

b. How much was their net farm income, if they had no accrual adjustments?

   $ \underline{\phantom{0}} \text{(3)}$

c. How much did their total liabilities increase or decrease from the beginning of the year to the end?

   $ \underline{\phantom{0}} \text{(3)}$
17. Which type of budget is described by each of the statements below? (2 pts. each)

A. Enterprise budget
B. Cash flow budget
C. Partial budget
D. Whole farm budget

_____ a. Projections are made monthly or bi-monthly
_____ b. Projections for crops are usually made in $ per acre
_____ c. Can be used to compute a break-even selling price
_____ d. Includes only possible changes in revenue and costs
_____ e. Costs per unit are multiplied by the number of units produced
_____ f. Compares two different management actions

18. Explain how buying PUT options provides a seller with a minimum price without giving up potential gains if the market rises. (5 pts)

19. When a seller forward contracts grain, what four elements are specified in the contract? (4 pts)

a. _____________________________  b. _____________________________
   c. _____________________________  d. _____________________________

20. Wendy Wheatgrower produces dryland wheat in Western Kansas. She estimates the following probabilities for her average yield next year:

<table>
<thead>
<tr>
<th>Yield per acre</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 bu.</td>
<td>20%</td>
</tr>
<tr>
<td>40 bu.</td>
<td>40%</td>
</tr>
<tr>
<td>25 bu.</td>
<td>30%</td>
</tr>
<tr>
<td>0 bu.</td>
<td>10%</td>
</tr>
</tbody>
</table>

a. How much is her “expected value” for wheat yield? (3)

_____________________ bu/acre.
b. Wendy is considering three different types of crop insurance policies. Her actual production history (APH) yield is 35 bushels per acre. How much is her guarantee for each one at the 80% level? (4)

1) APH yield insurance _________ bushels/acre
2) Basic revenue insurance $_________ per acre
   (average futures price when purchased is $3.50 per bushel)

c. How much would her indemnity payment from the insurance company be if her actual yield was only 25 bushels per acre and the average futures price at harvest was $3.00 per bushel? (6)

1) APH yield insurance $_________ per acre
2) Basic revenue insurance $_________ per acre
1. A
2. B
3. B
4. C
5. D
6. A
7. C
8. B
9. B
10. A
11. D
12. D
13. C
14. A
15. a. 10,000 bu. x $5.50/bu. x 8% x 6/12 year. = $2,200
   b. $5.50 + ($5.50 x 8% x 6/12 yr) + $.05 = $5.77/bu.
   c. $6.40 – $.30 = $6.10
   d. 1) most risky
      2) least risky
      3) basis risk only
16. a. $90,000 - $89,000 = $1000 (\$1,000 increase)
   b. Income: $41,000 + 26,000 + 5,000 = $72,000
      Expenses: $20,000 + 11,000 + 5,000 + 11,000 = $47,000
   c. $12,000 – 20,000 = $-8,000 (\$8,000 decrease)
17. B, A, A, C, D, C
18. If the market goes down the value of a put option goes up by about the same amount.
   If the market goes up, the value of a put option goes down, but not below zero, so additional market gains are not offset.
19. Quantity, delivery date, price, delivery location, quality grade and name.
20. a. (50 x .20) + (40 x .40) + (25 x .30) + (0 x .10)
    = 10 + 16 + 7.5 + 0 = 33.5
    = 33.5 bu./acre
   b. APH yield insurance 80% x 35 bu. = \$28/bu.
      Basic revenue insurance 80% x 35 bu. x $3.50 = \$98.00/acre
   c. APH yield insurance (28 - 25 bu.) x $3.20 = \$9.60/acre
      Basic revenue insurance $98 – (25 bu. x $3.00) 98 – 75 = \$23.00/acre