True/False or Fill in the Blank (2 points each)

1. T[F] Livestock Risk Protection (LRP) works like a call option.


3. T[ F] Option premiums are set at predetermined levels by the exchange.

4. T[F] If a person is a “bull”, then they expect prices to rise.

5. T[F] Options contracts are on the underlying futures contract and not the commodity itself.

6. A put option contains the right to sell a futures contract.

7. Hedgers are willing to make or take physical delivery because they are producers or users of the commodity.

8. Speculators have no use for the physical commodity and are attempting to profit from price movements.

9. If I take a long position in the futures market, then I have bought a futures contract.


11. In a hedge, the net price will differ from the expected price only by the amount that the actual basis differs from the expected basis.
Short Answer (6 points each)

12. Name 3 of the 5 factors that affect the value of an option premium.

1) Time to maturity  
2) Futures price  
3) Strike price  
4) Interest rate  
5) Futures price volatility

13. On Mar. 2nd, June 2012 Lean Hog futures were priced at $99.50 per cwt. Given that futures price, is a $102 put option in-the-money or out-of-the-money?

In the money.

What is the intrinsic value for the option on Mar. 2nd?

Intrinsic value = Max($0.00, Futures price – Strike price)  
= Max($0.00, $102.00 - $99.50)  
= Max($0.00, $2.50)  
= $2.50

14. I put on a short hedge using May 2012 soybean futures on Mar. 2nd. The futures price was $13.33 per bushel. If my expected basis is -$0.50 per bushel and the broker charges me a 2 cent per bushel commission, what is my expected price under the short hedge?

Expected price = Futures price + Basis – Commission  
= $13.33 - $0.50 - $0.02  
= $12.81

In May, I will want to offset the short hedge, how will I do that?

I will offset by buying back the May 2012 soybean futures contract.

15. Calculate a seasonal index price projection for July hogs, given a February price of $65.50 per cwt.

<table>
<thead>
<tr>
<th>2002-2011 Hog Prices ($/cwt.)</th>
<th>Average Price</th>
<th>% of Annual Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>42.78</td>
<td>89.9%</td>
</tr>
<tr>
<td>Feb</td>
<td>45.27</td>
<td>95.2%</td>
</tr>
<tr>
<td>Mar</td>
<td>45.62</td>
<td>95.9%</td>
</tr>
<tr>
<td>Apr</td>
<td>46.62</td>
<td>98.0%</td>
</tr>
<tr>
<td>May</td>
<td>51.80</td>
<td>108.9%</td>
</tr>
<tr>
<td>Jun</td>
<td>51.97</td>
<td>109.2%</td>
</tr>
<tr>
<td>Jul</td>
<td>51.90</td>
<td>109.1%</td>
</tr>
<tr>
<td>Aug</td>
<td>51.58</td>
<td>108.4%</td>
</tr>
<tr>
<td>Sept</td>
<td>48.45</td>
<td>101.8%</td>
</tr>
<tr>
<td>Oct</td>
<td>46.39</td>
<td>97.5%</td>
</tr>
<tr>
<td>Nov</td>
<td>43.76</td>
<td>92.0%</td>
</tr>
<tr>
<td>Dec</td>
<td>44.71</td>
<td>94.0%</td>
</tr>
<tr>
<td>Annual</td>
<td>47.57</td>
<td></td>
</tr>
</tbody>
</table>

The July price projection  
= Feb. price * (July index/Feb. index)  
= $65.50 * (109.1%/95.2%)  
= $75.06/cwt.
Matching (2 points each)

Answer questions matching the following action to the appropriate statement. Terms may be used more than once.

a) Sell a call option  c) Sell a put option  e) Sell a futures contract
b) Buy a call option  d) Buy a put option  f) Buy a futures contract

16. ___E___ Lose on price increases, but gain on price decreases.
17. ___C___ Receive a premium, but maybe obligated to buy a futures contract at the strike price.
18. ___D___ Have the right, but not the obligation, to sell a futures contract at the strike price.
19. ___F___ Receive payment into a margin account if futures price increases.
20. ___D___ Limited risk if futures prices rise, but unlimited profit potential if they fall.
21. ___A___ Known profit for futures prices below the strike price, but unlimited losses otherwise.
22. ___D___ Protects against lower prices but doesn’t prevent gains from higher prices.
23. ___B___ Have the right, but not the obligation, to buy a futures contract at the strike price.
24. ___E___ Must pay into a margin account if futures price increases.

Margins (12 points)

25. I am a hedger that went short on December 2012 live cattle on Feb. 27, 2012 at $134.00 per cwt. (1 cwt. is equal to 100 pounds). Each live cattle futures contract covers 40,000 pounds. The initial margin requirement is $1,620. The maintenance margin is $1,200. Fill out my margin account for one futures contract.

<table>
<thead>
<tr>
<th>Date</th>
<th>Futures Price</th>
<th>Gain/Loss</th>
<th>Margin Call</th>
<th>Account Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/27/2012</td>
<td>$134.00</td>
<td></td>
<td>X</td>
<td>$1,620.00</td>
</tr>
<tr>
<td>2/28/2012</td>
<td>$133.75</td>
<td>$0.25 * 400 = $100.00</td>
<td>X</td>
<td>$1,720.00</td>
</tr>
<tr>
<td>2/29/2012</td>
<td>$134.95</td>
<td>-$1.20 * 400 = -$480.00</td>
<td></td>
<td>$1,240.00</td>
</tr>
<tr>
<td>3/1/2012</td>
<td>$135.55</td>
<td>-$0.60 * 400 = -$240.00</td>
<td>$620.00</td>
<td>$1,620.00</td>
</tr>
<tr>
<td>3/2/2012</td>
<td>$135.10</td>
<td>$0.45 * 400 = $180.00</td>
<td></td>
<td>$1,800.00</td>
</tr>
</tbody>
</table>
Math and Graph (16 points, please show your work)

26. A corn producer is looking to put a floor price on her upcoming production. She buys a $5.00 put option on Dec. 2011 corn. The premium for the option is $0.24 and the commission is 1 cent per bushel. When she offsets or exercises the option, there is no additional commission. She expects a harvest time basis of -$0.30 per bushel. Please graph the relevant cash price, option return, and net price lines.

What is her floor price?

Floor price = Strike price + Basis – Premium – Commission = $5.00 - $0.30 - $0.24 - $0.01 = $4.45

At what price does she breakeven on the option?

Breakeven price = Strike price – Premium – Commission = $5.00 - $0.24 - $0.01 = $4.75

If the Dec. 2011 corn futures price falls to $4.75 and the harvest time basis is -$0.10, what is her net price?

Cash price = Futures price + Basis = $4.75 - $0.10 = $4.65

Put option return = Max($0.00, Strike price – Futures price) – Premium – Commission
= Max($0.00, $5.00 - $4.75) - $0.24 - $0.01 = Max($0.00, $0.25) - $0.25
= $0.25 - $0.25

Net price = Cash price + Put option return = $4.65 + $0.00 = $4.65