1. A zero coupon bond with 2.5 years to maturity has a yield to maturity of 25% per annum. A 3-year maturity annual-pay coupon bond has a face value of $1000 and a 25% coupon rate. The coupon bond also has a yield to maturity of 25%. Does the longer maturity bond have a larger interest rate sensitivity? Why or why not? Calculate for each bond the percentage price change associated with a change of yield to maturity from 25% to 26%.

2. Construct profit diagrams or profit tables on expiration to show what position in IBM puts, calls and/or underlying stock best expresses the investor’s objectives described below. Assume IBM currently sells for $150 so that profit diagrams/tables between $100 and $200 (in $10 increments) are appropriate. Also assume that ”at the money” puts and calls cost $15 each. (As usual, the profit calculations ignore dividends and interest.)

(a) An investor wants upside potential if IBM increases but wants (net) losses no greater than $15 if prices decline.

(b) An investor wants to capture profits if IBM declines in price but wants a guaranteed limited loss if prices increase.

(c) An investor wants to capture profits if IBM declines in price and is ready to accept unlimited losses if prices increase. Further, the investor wants to break even if the stock price does not change between now and the maturity of the options.

(d) An investor wants to profit if IBM’s upcoming earnings announcement is either unexpectedly good or disappointingly bad.

(e) An investor already owns IBM (at a price of $150) and wants to protect against price declines but wants to retain upside if prices rise. Only one transaction is permitted here.

(f) Suppose the NYSE suspended trading in IBM pending a news announcement. You want to sell IBM before the announcement and options trading in IBM continues uninterrupted on the CBOE. How do you neutralize your exposure to stock price changes by trading options? (You can use the insights from the put-call parity.)