DSA 5303
Summer 2018

Homework 4

Please show all relevant work when you upload the assignment.

Problem 2.
In the 1980s, Bankers Trust developed index currency option notes (ICONs). These are bonds in which the amount received by the holder at maturity varies with a foreign exchange rate. One example was its trade with the Long Term Credit Bank of Japan. The ICON specified that if the yen–U.S. dollar exchange rate, S_T, is greater than 169 yen per dollar at maturity (in 1995), the holder of the bond receives $1,000. If it is less than 169 yen per dollar, the amount received by the holder of the bond is

$$1,000 - \max\left[0,\ 1,000\left(\frac{169}{S_T} - 1\right)\right]$$

When the exchange rate is below 84.5, nothing is received by the holder at maturity. Show that this ICON is a combination of a regular bond and two options.

Problem 3.
On July 1, 2011, a company enters into a forward contract to buy 10 million Japanese yen on January 1, 2012. On September 1, 2011, it enters into a forward contract to sell 10 million Japanese yen on January 1, 2012. Describe the payoff from this strategy.

Problem 4.
A trader buys a call option with a strike price of $30 for $3. Does the trader ever exercise the option and lose money on the trade. Explain.