Baylor University
Hankamer School of Business
Department of Finance, Insurance & Real Estate

Risk Management
Dr. Garven
Problem Set #7

Name: _____

Show your work and write as legibly as possible. Good luck!

Problem 1 (50 points)

Suppose the current value of a (non-dividend-paying) stock is $10,000, and the annual continuously compounded riskless rate of interest is 4%. Based on the example provided on pp. 9-14 from the "Derivatives Theory, Part 1" lecture note, solve parts A and B below.

A. (25 points) What is the "arbitrage-free" price for a forward contract on this stock which matures 1 year from today?

B. (25 points) Suppose the forward price is $10,400. Describe a profitable zero risk, zero net investment trading strategy involving the forward contract and its replicating portfolio. If you implement such a strategy, how much profit will you earn?

Problem 2 (50 points)

The price of a share of Zoom stock is currently $250. It is known that at the end of 1 year, the Zoom share price will be either $312.50 or $200. The riskless interest rate is 2% per year.

A. (10 points) Calculate the price of a 1-year European call option on Zoom stock with an exercise price of $250 by applying the replicating portfolio approach.

B. (10 points) Calculate the price of a 1-year European call option on Zoom stock with an exercise price of $250 by applying the risk neutral valuation approach.

C. (10 points) Calculate the price of a 1-year European put option on Zoom stock with an exercise price of $250.

D. (20 points) Next, add another 1-year timestep; i.e., it is known that at the end of 2 years, the Zoom share price will be $390.63, $250, or $160. Calculate the price of a 2-year European call option on Zoom stock with an exercise price of $250. Also calculate the price of a 2-year European put option on Zoom stock with an exercise price of $250.