MATH4511 Quantitive Methods for Fixed Income Derivatives, 2015-16 Fall
Quiz 01(T1D)

Name: _____ **ID No.:** _____ **Tutorial Section:**_____

1. Describe the meaning of "marking to market on a daily basis" (also called daily settlement) for future contracts.

2. Consider a forward contract with strike price K and maturity T. Use replication arguments to show that the value of the forward contract is
$$S_0 - K\ d(T),$$
where S_0 is the price of the underlying asset and $d(T)$ is the discount factor. Also, prove the formula of put-call parity:
$$C_0 - P_0 = S_0 - K\ d(T),$$
where C_0 is the price of the call option and P_0 is the price of the put option, both have the same strike price and maturity as those of the forward contract.

3. The current stock price of Microsoft Corporation is \$130. Assume that over every 3-month time, the stock price will either increase by 20% or decrease by 10% with equal probabilities. The risk-free interest rate with quarterly compounding is 8% per annum. Compute the the value of a 6-month European put option of strike price \$130 with a two-step binomial tree.

Answer _____