KFUPM	Term 162	Date: 26/3/2017
Mathematics & Statistics	AS 483	Duration: 30 minutes
	Quiz# 3	
Name:	ID #:	Section:

Q1: For a special investment product, you are given:

(i) All deposits are credited with 75% of the annual equity index return, subject to a minimum guaranteed crediting rate of 3%.
(ii) The annual equity index return is normally distributed with a mean of 8% and a standard deviation of 16%.
(iii) For a random variable X which has a normal distribution with mean μ and standard deviation σ, you are given the following limited expected values:

E(X ^ 3%)		
	μ=6%	μ=8%
σ=12%	-0.43%	0.31%
σ=16%	-1.99%	-1.19%

E(X ^ 4%)		
	μ=6%	μ=8%
σ=12%	0.15%	0.95%
σ=16%	-1.43%	-0.58%

Calculate the expected annual crediting rate.

Q2: Losses follow a two – parameter Pareto distribution with $\alpha=2$ and $\theta=5{,}000$. An insurance policy pays the following for each loss. There is no insurance payment for the first 1,000. For losses between 1,000 and 6,000, the insurance pays 80%. Losses above 6,000 are paid by the insured until the insured has made a total payment of 10,000. For any remaining part of the loss, the insurance pays 90%. Determine the expected insurance payment per loss.

Q3: Losses have a lognormal distribution with $\mu=7$ and $\sigma=2$. There is a deductible of 2,000, and 10 losses are expected each year. Determine the loss elimination ratio. If there is uniform inflation of 20% but the deductible remains at 2000, how many payments will be expected?