KFUPM	Term 181	Date: 27/9/2018
Mathematics & Statistics	AS 201	Duration: 40 minutes
	Quiz# 1	
Name:	ID #:	Section:

Q1: David can receive one of the following two payment streams:
(i) 100 at time 0, 200 at time n years, and 300 at time 2n years
(ii) 600 at time 10 years
At an annual effective interest rate of i, the present values of the two streams are equal.
Given $v^n=0.76$, calculate i.

Q2: Joe deposits 10 today and another 30 in five years into a fund paying simple interest of 11% per year. Tina will make the same two deposits, but the 10 will be deposited n years from today and the 30 will be deposited 2n years from today. Tina's deposits earn an effective annual rate of 9.15%. At the end of 10 years, the accumulated amount of Tians's deposits equals the accumulated amount of Joe's deposits. Calculate n.

Q3: For the period from 0 to time 2, the force of interest is defined as follows:

$$\begin{cases} 0.05 \quad for\ 0 < t \leq 1 \\ 0.05 + 0.02(t-1)\ for\ 1 < t \leq 2 \end{cases}$$

10,000 is invested at time 0. Find the accumulated value at time 1 and time 2.

Q4: A discounted note of face amount X, due in one half year, is valued today at 4992. Find X under each of the following interest calculation methods.

a. Compound interest at effective annual interest 8%.
b. Simple interest at annual rate 8%.
c. Compound discount at effective annual rate 8%.
d. Simple discount at annual rate 8%.

Q5: Jeff deposits 10 into a fund today and 20 fifteen years later. Interest for the first 10 years is credited at a nominal discount rate of d compounded quarterly, and thereafter at a nominal interest rate of 6% compounded semiannually. The accumulated balance in the fund at the end of 30 years is 100. Calculate d.