MAT205 – Exam 1 – Summer 2009

1) (10 points) a) Find d6 if the rate of compound discount is 2%

b) Find i4 if the rate of simple interest is 5%

2) (15 points) Find the present value of $8000 due in 10 years at 8%

a) Compounded Quarterly

b) Discounted Semi-annually

c) Simple Interest

3) (10 points) Find the nominal rate of discount convertible quarterly which is equivalent to a rate of interest of 6% convertible every 2 months

4) (17 points) Two Thousand Dollars are invested for 10 years at a nominal rate of interest of 10% compounded semi-annually for the first 3 years, a nominal rate of interest of 8% compounded quarterly for the next 4 years, and a nominal rate of interest of 12% compounded monthly for the last 3 years.

a) Find the accumulated value after 10 years

b) Find the equivalent level annual effective rate of discount over the 10 year period

5) (10 points) Prove that a(t) = e^0∫tδr dr

6) (10 points) Find the accumulated value of $400 at the end of 5 years if δt = 2/ (t+1)

7) (12 points) A sum of $9000 was deposited in a Bank at 5% simple interest on October 16, 2005. It was withdrawn on June 15, 2007. Find the amount of interest earned assuming:

a) Ordinary Simple Interest

b) Banker’s Rule

8) (16 points) Payments of $400, $800 and $1000 are due at the end of years 3, 5 and 10 respectively. Assuming an effective rate of interest of 2% per annum, find the point in time at which a payment of $2200 would be equivalent by the method of:

a) Equated time

b) Linear interpolation in interest tables