Mansoura University
Faculty of Engineering
Mech. Power Eng. Dept.   *Humities in MPE*

1ˢᵗ year of Mmechanical Engineering
Final Exam., Dec. 2010
Time: 2 Hrs

Solve as you can

Problem 1

1) Determine how much money to put in a bank today at 6% so that we could withdraw equal amounts of $199.96 for the next 7 years, starting at the end of the first year.

2) How much money could we take out of the bank after 5 years if we were willing to invest $100 today, $200 at the end of the first year, $300 at the end of the second year, $400 at the end of the third year, $500 at the end of the fourth year, and $600 at the end of the fifth year? Use 6% interest.

3) to invest a Gradient = $100 at the end of each year for 7 years at 6% interest (i.e. $0 at the end of year 1, $100 at the end of year 2, $200 at the end of year 3, ... , and $600 at the end of year 7, what Annual amount or Annuity could we take out of the bank starting at the end of the first year and continuing until the end of the seventh year?

Problem 2

1) How much money must you put in the bank TODAY, to be able to draw out $200 at the end of the first year, $230 at the end of the second year, $260 at the end of the next year, and so on, until taking out $380 at the end of the seventh year?

2) If you invest $600 today and $600 more at the end of each year for a total of 5 years, and then deposit $200 at the end of the next 4 years, how much money will have accrued at the time of your last deposit at 6%?

3) How much would $20,000 invested today be worth at a nominal annual interest rate of 6% compounded continuously for 7 years? Note that in these equations the interest rate is no longer labeled i - rather it is given the name r to show continuous compounding.

Problem 3

1) How much money must you put in the bank TODAY, to be able to draw out $200 at the end of the first year, $230 at the end of the second year, $260 at the end of the next year, and so on, until taking out $380 at the end of the seventh year?

2) An initial investment of $500 is being considered. The revenues from this investment are $300 at the end of the first year, $300 at the end of the second, and $200 at the end of the third. If the desired return on investment is 15%, is the project acceptable?

3) If we were able to invest a Gradient = $100 at the end of each year for 7 years at 6% interest (i.e. $0 at the end of year 1, $100 at the end of year 2, $200 at the end of year 3, ... , and $600 at the end of year 7, what Annual amount or Annuity could we take out of the bank starting at the end of the first year and continuing until the end of the seventh year?

Good Luck