**Math 5068**

**Excel Project *- Submission #4***

1. Part 11 – Whole Life Reserve

For a fully discrete whole life insurance of 1000 on (20):

* Benefit premiums are calculated using the equivalence principle.
* Mortality follows the Illustrative Life Table
* 
  1. Calculate  for t = 0-90 using the following methods:
     1. Prospective Formula
     2. Retrospective Formula
     3. Premium Difference Formula
     4. Paid-Up Formula
     5. Annuity-Ratio Formula
     6. Insurance-Ratio Formula
     7. Premium-Ratio Formula
     8. Recursive Relationship
  2. Calculate  for t = 0-90.

1. Part 12 – Term Life Reserve

For a fully discrete 20-year Term life insurance of 1000 on (20):

* Benefit premiums are calculated using the equivalence principle.
* Mortality follows the Illustrative Life Table
* 
  1. Calculate  for t = 0-20 using the following methods:
     1. Prospective Formula
     2. Retrospective Formula
     3. Recursive Relationship
  2. Calculate 

1. Part 13 – Gross Reserves

For a fully discrete whole life insurance of 100,000 on (20):

* Premiums are calculated using the equivalence principle.
* Per policy: $100 at issue, $15 at the beginning of each renewal year.
* Per 1000 face amount: $10 at issue, $1 at the beginning of each renewal year
* Per premium: 5% at issue, 2% at the beginning of each renewal year.
* Mortality follows the Illustrative Life Table
* 
  1. Calculate the Gross Premium
  2. Calculate the Expense Loading
  3. Calculate the yearly total expenses for t = 0-90
  4. Calculate  for t = 0-90 using the following methods:
     1. Prospective Formula
     2. Recursive Relationship
  5. Calculate the Expense Reserve for t = 0-90 using the following methods:
     1. Direct calculation of future expense loadings
     2. Using the Gross Reserve
  6. Calculate 

All cells shaded blue must be filled in with formulas. You may insert or delete cells and columns as needed. You may work in groups however each person needs to submit their own project that contains their own work.

Submission 4 is due online through moodle by **Monday, February 26** at midnight.