Exam 3 Information

You are encouraged to check this document to make sure that I did not accidentally have typos in any of the formulas.

Chapter 5

- Computing level payments on a loan: loan $= Ra_{\overline{n}|}$
- Computing the outstanding loan balance.

  Prospective Method: Present value of the remaining payments.
  Level Payments of R: $B_t^p = Ra_{\overline{n-t}|}$

  Retrospective Method: accumulate the loan balance and subtract the future value of the payments made.

  Level Payments of R:
  $B_t^r = Ra_{\overline{n}|}(1+i)^t - Rs_{\overline{t}|}$

- Amortization Schedules

  Creating a table with level or non-level payments.

  With Level payments of 1
  - Principal repaid is a geometric progression with ration of $(1+i)$.
  - $P_t = v^{n+1-t}$
  - $I_t = 1 - v^{n+1-t}$
  - $B_{t+1} = B_t(1+i) - R$

- Sinking Funds

  Service on the loan.

  Sinking fund chart.

  When sinking fund is equivalent to an amortization.

Chapter 6

Bond-Info

- T-bills use discount rates and exact/360 for calculations
- Bond Notation: see section 6.3 notes
- Price Formulas:
  $P = Fra_{\overline{n}|i} + K$
  $P = C + (Fr - Ci)a_{\overline{n}|i}$
  $P = C + C(g-i)a_{\overline{n}|i}$
  $P = G + (C-G)v^n$
  $P = K + \frac{g}{i}(C-K)$
- Book value of a bond: $B_{t+1} = B_t(1+i) - Fr$
- Bond selling at a discount/premium
- Amortization chart of a bond.
  writing up a bond
  writing down a bond
  principal adjustment is a geometric progression
- Pricing bonds on non-coupon dates
  Market Price: $B_{t+k}^m = B_{t+k}^f - Fr_k$
  $k = \frac{\text{number of days since last coupon date}}{\text{number of days in coupon period}}$

  Theoretical method:
  Flat price: $B_{t+k}^f = B_t(1+i)^k$
  Accrued Coupon: $Fr_k = Fr\left[\frac{(1+i)^k-1}{i}\right]$

  Practical method:
  Flat price: $B_{t+k}^f = B_t(1+ki)$
  Accrued Coupon(Interest): $Fr_k = Fr * k$

  Semi-theoretical Method:
  Flat price: $B_{t+k}^f = B_t(1+i)^k$
  Accrued Coupon(Interest): $Fr_k = Fr * k$
- Determining Yield rates
- Callable bonds

  Price when redemption values are equal.

  Price when redemption values are unequal.
- Putable bonds

  Price when redemption values are equal.

  Price when redemption values are unequal.

Other Securities

- Pricing using annuities and perpetuity

Any additional topic/information covered in these chapters.