Chapter 4 – 1

1. If I prefer $100 today rather than $110 one year from today is because

(1) I know that the interest rate is greater than 10%.
(2) I know that the interest rate is less than 10%.
(3) I don’t agree with the present value formula.
(4) None of the above.

2. The COUPON RATE on a coupon bond with a purchase price of $2500, a $3000 face value, annual coupon payments of $125, and a 4-year maturity is

(1) the coupon payment $125 divided by the purchase price $2500.
(2) the coupon payment $125 divided by the face value $3000.
(3) the average coupon payment per year, which here is $125.
(4) total coupon payments ($500) divided by the purchase price $2500.

3. Yield to maturity is:

(1) The interest rate that equates the bond's present value with its price today.
(2) The interest rate that always equates the bond's present value with its face value.
(3) The interest rate that equates all future payments.
(4) The interest rate that equates price to face value.

4. If a coupon bond is selling below its par value, then

(1) yield to maturity < current yield < coupon rate
(2) current yield > coupon rate > yield to maturity
(3) current yield < coupon rate < yield to maturity
(4) coupon rate < current yield < yield to maturity

5. Which of the following $1,000 face- value securities with the same maturity has the lowest yield to maturity?

(1) A 10 percent coupon bond selling for $1,000
(2) A 10 percent coupon bond selling for $1,100
(3) A 12 percent coupon bond selling for $1,000
(4) A 12 percent coupon bond selling for $ 900

6. Which of the following investment opportunities has the highest yield to maturity?

(1) Discount bond with a current price of $900, a face value of $1000 in one year.
(2) Simple loan with 10% interest rate.
(3) Coupon bond with $1000 face value, and $115 yearly coupon payments, which you can buy for $950.
(4) A $1000 perpetual bond which pays $100 every year.

Key Concepts: Present Value, Coupon Bond, Discount Bond, Yield to Maturity, Par (or Face) Value, Current Yield, relation between price and YTM, relation between current yield, coupon rate and YTM.

Chapter 4-2

1. The yield on a discount basis of a 90-day $1,000 Treasury bill selling for $900 is

(1) 10 percent. (2) 20 percent. (3) 25 percent. (4) 40 percent.

2. Which of the following is/are true of the yield on a discount basis as a measure of the interest rate?

(1) It uses the percentage gain on the purchase price of the security, rather than the percentage gain on the face value of the security.
(2) It puts the yield on the annual basis of a 360-day year.
(3) It ignores the time to maturity
(4) All of the above are true (5) Only (1) and (2) of the above are true

3. The return on a $1000 face value and 10 percent coupon rate bond that initially sells for $1,000 and sells for $1,200 next year is

(1) 15 percent. (2) 25 percent. (3) 30 percent. (4) 33 percent.

4. If the interest rates on all bonds rise from 5 to 6 percent over the course of the year, which bond would you prefer to have been holding?

(1) A bond with one year to maturity
(2) A bond with five years to maturity
(3) A bond with ten years to maturity
(4) A bond with twenty years to maturity

5. The following information is obtained from Wall Street Journal (WSJ) Treasury Bonds, Notes, and Bills section on September 20, 2002

Rate	Maturity	Asked	Ask. Yld.
5 5/8	Sep. 05n	99:16	6.23

(Note: 5 5/8=5.625 and 99:16 = 99.5)

If we buy this bond on September 20, 2002 and sell it one year later at par, our realized return is:

(1) 6.30% (2) 6.23% (3) 6.16% (4) 6.09%

6. Consider the NYSE Corporate Bond:

Bond	Mat.	Cur. Yld	Vol.	Close	Net Chg
ATT 5 5/8	05	6.0	22	94	+ ?

If you buy this bond and sell it one year later for 96, then realized return is

(1) 7.94% (2) 8.11% (3) 5.63% (4) 7.63%

7. If you expect the inflation rate to be 4 percent next year and a one year bond has a yield to maturity of 7 percent, then the real interest rate on this bond is

(1) - 3 percent. (2) - 2 percent. (3) 3 percent. (4) 7 percent.

Key Concepts: Yield on a Discount Basis, Perpetual Bond (or Consol Bond), Return and Fisher Equation.

Chapter 4 - Credit Instruments, Present Values and YTM.

1- Simple Loan (p. 71)

$$\text{Present Value} = \frac{\text{Future Value}}{(1+\mathrm{i})^{n}} \text{ , “n” years from today.}$$

2- Fixed Payment Loan (p. 72)

$$\text{Present Value} = \frac{\text{Fixed Payment}}{(1+i)} + \frac{\text{F. P.}}{(1+i)^2} + \frac{\text{F. P.}}{(1+i)^3} + \ldots + \frac{\text{F. P.}}{(1+i)^n}$$

3- Coupon Bonds (p. 73)

$$\text{P V} = \frac{\text{Coupon Payment}}{(1+i)} + \frac{\text{C. P.}}{(1+i)^2} + \frac{\text{C. P.}}{(1+i)^3} + \ldots + \frac{\text{C. P.}}{(1+i)^n} + \frac{\text{Face Value}}{(1+i)^n}$$

4- Consol Bond or Perpetuity (p. 75)

$$\text{P V} = \frac{\text{Yearly Payment}}{i}; \qquad \text{and then YTM} = \frac{\text{Yearly Payment}}{\text{Price}}$$

5- Discount Bonds (p. 77)

$$\text{P. V. (for one year)} = \frac{\text{Face Value}}{(1+i)}; \text{ and then YTM} = \frac{\text{Face Value - Price}}{\text{Price}}$$

6- Current Yield (p.77)

$$\text{CY} = \frac{\text{Coupon Payment}}{\text{Price}}$$

Note: CY is an approximation of the YTM on coupon bonds, the approximation is better, the closer the bond is selling to par and the larger is n (years to maturity).

7- Yield on a Discount Basis (p. 78)

$$\text{Y}_{\text{db}} = \frac{\text{Face Value - Price}}{\text{Face Value}} \times \frac{360}{\text{days to maturity}}$$

Note: Y_{db} is an approximation of the YTM on discount bonds, the Y_{db} always understates the YTM and the understatement becomes more severe the longer the maturity of the bond.

8- Rate of Return (for any security) = payments to the owner plus the change in its value, expressed as a fraction of its purchase price (p. 82-83)

$$\text{RET} = \frac{\text{Coupon Payment} + P_{t+1} - P_t}{P_t} \qquad \text{(for one year)}$$

9- Fisher Equation (p.87)

$i = i_r + \pi^e$ (nominal interest rate equals real interest rate plus expected rate of inflation).