Solution to numerical questions

Name of Student

Name of institution

**Solution 1**

 P= ∑ (Cn /(1+YTM) ^n) +p/(1+i) ^n

Where

Cn = Coupon payment for 4 years

YTM= yield to maturity or required rate of return

N= Time to maturity which is 4 years

P= Face Value

I = Discount rate or required rate of return

Putting values

= [78/ (1.065) ^1+78/ (1.065) ^2+78/ (1.065^3) +78/ (1.065) ^4] + 1000/ (1.065) ^4

= 73.23+68.76+64.57+60.63+777.32

= $ 1044.51

**Solution 2**

P= ∑ (Cn /(1+YTM) ^n) +p/(1+i) ^n

Where

Cn = Coupon payment for 4 years

YTM= yield to maturity or required rate of return

N= Time to maturity which is 4 years

P= Face Value

I = Discount rate or required rate of return

Putting values

= 54/ (1.097) +54/ (1.097) ^2+ 54/ (1.097) ^3 + 54/ (1.097) ^4 + 54/ (1.097) ^5………. +54/ (1.097) ^ 25) + 1000/ (1.097) ^ 25

= 49.225+ 44.87 + 40.90+ 37.28 + 33.99……. + 5.336+ 187.40

= 165.36 + 295.33+187.4

= $ 648

**Solution 3**

= {(Face Value/ Current Bond Price) ^ 1/ years to maturity}-1

 = ((1000/492) ^1/8)-1

 = 9.27%

**Solution 4**

D0 = $ 3.42, g = 5% per year, RRR = 11%

P0 = D1 /r-g

D1= 3.42(1.05)

 = 3.591

For 5%,

3.591/0.11-0.05

= $ 59.85

For 7%

3.42(1.07)/0.11-0.07

= 3.66/0.11-0.07

=3.66/0.04

= $ 91.5

For -3%

3.42(0.97) / 0.11+0.03

= $ 23.69

**Solution 5**

P0 = $ 94.5, D1 = $ 6.95, r = 9.6, g =?

94.5 = 6.95/(9.6-g)

9.072-94.5 g = 6.95

9.072-6.95 = 94.5 g

2.122 = 94.5 g

2.25 % = g

**Solution 6**

P0 = 13.5/0.142

 = $ 95.07

**Solution 7**

D0 = $ 2.85

D1 = 2.85 (1.3) = 3.7, for discounting 3.7/1.108 = 3.34

D2 = 2.85 (1.3) ^2= 4.82, for discounting 4.82/ (1.108) ^ 2 = 3.93

D3 = 2.85 (1.3) ^ 3= 6.25, for discounting 6.25/ (1.108) ^ 3 = 4.59

For fourth year,

6.25+2.4 = 8.66, for discounting, 8.66/ (1.108) ^ 4 = 5.76

Next dividend

8.66 (1.02) = 8.83

Value at constant growth rate

8.83/ (10.8-2)

= 100.34, for discounting 100.34/(1.108) ^ 5 = 60.08

Value of bond today **= 77.70**

**Solution 8**

D0 = 4.2, discounted value = 4.2/1.089 = 3.86

 D1 = 5.5, discounted Value = 5.5 / 1.089^2 = 4.64

 D2 = 7.2, discounted value = 7.2 / 1.089 ^ 3 = 5.57

For future period,

 7.2 (1.04) = 7.48

V = 7.48/ (8.9 – 4) = $ 152.65, discounted value 152.65 / 1.089 ^3 = 118.19

Adding these values, we get, $ 132.27, then discounting it further for 2 years, we get,

= 132.27/ (1.089) ^2

= $ 111.53