

# Chapter Tests of SFM of CA Ashish Lalaji 9825856155

## SFM Test of Bonds

Maximum Marks: 25

Time Allowed: 1 hour

All questions are compulsory

**Q 1** GHI Ltd., AAA rated company has issued, fully convertible bonds on the following terms, a year ago:

Face value of bond	Rs. 1000
Coupon (interest rate)	8.5%
Time to Maturity (remaining)	3 years
Interest Payment	Annual, at the end of year
Principal Repayment	At the end of bond maturity
Conversion ratio (Number of shares per bond)	25
Current market price per share	Rs. 45
Market price of convertible bond	Rs. 1,175

AAA rated company can issue plain vanilla bonds without conversion option at an interest rate of 9.5%.

Calculate as of today:

- (i) Straight Value of bond.
- (ii) Conversion Value of the bond.
- (iii) Conversion Premium.
- (iv) Percentage of downside risk.
- (v) Conversion Parity Price.

	1	2	3
PVIF 0.095, t	0.9132	0.8340	0.7617

**(6 Marks)**

**Q 2** The following data are available for three bonds A, B and C. These bonds are used by a bond portfolio manager to fund an outflow scheduled in 6 years. Current yield is 9%. All bonds have face value of Rs.100 each and will be redeemed at par. Interest is payable annually.

Bond	Maturity (Years)	Coupon rate
A	10	10%
B	8	11%
C	5	9%

- (i) Calculate the duration of each bond.
- (ii) The bond portfolio manager has been asked to keep 45% of the portfolio money in Bond A. Calculate the percentage amount to be invested in bonds B and C that need to be purchased to immunise the portfolio.

- (iii) After the portfolio has been formulated, an interest rate change occurs, increasing the yield to 11%. The new duration of these bonds are: Bond A = 7.15 Years, Bond B = 6.03 Years and Bond C = 4.27 years. Is the portfolio still immunized? Why or why not?
- (iv) Determine the new percentage of B and C bonds that are needed to immunize the portfolio. Bond A remaining at 45% of the portfolio.

Present values be used as follows:

<b>Present Values</b>	t1	t2	t3	t4	t5
PVIF <sub>0.09,t</sub>	0.917	0.842	0.772	0.708	0.650
<b>Present Values</b>	t6	t7	t8	T9	t10
PVIF <sub>0.09,t</sub>	0.596	0.547	0.502	0.460	0.4224

**(14 Marks)**

- Q 3** Several years ago PTPC issued bonds having face value of Rs.1,000 at par at an YTM of 7 %. Now, 8 years are left and the YTM has increased to 15%. What is the current price of the bonds of PTPC? Say, an investor buys the bond at current MPS. At the time of redemption PTPC goes broke and can pay only 80% of its face value. What is the YTM for the investor?

**(5 Marks)**

**Question Paper prepared by CA. Ashish Lalaji**

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