**JAIPURIA INSTITUTE OF MANAGEMENT, INDORE**

**PGDM**

**FIFTH TRIMESTER (Batch 2019-21)**

**END TERM EXAMINATION, JAN-2021**

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| Course Name | **Fixed Income Securities** | Course Code | **FIN 502** |
| Max. Time | **2 hours** | Max. Marks | **40** |

**INSTRUCTIONS:**

Please answer all the Questions:

**Q.1.** An analyst needs to assign a value to an illiquid 4 year, 4.5% annual coupon payment corporate bond. The analyst identifies two corporate bonds that have similar credit quality. One is 3 year 5.50 annual coupon payment bond priced at 1007.500 of par value, and the other is a five year 4.50% annual coupon bond priced at 104.750 par 100 of par value. Using matrix pricing, find the estimated price of the illiquid bond per 100 of par value.

**(10 Marks)**

**Q.2.**

**a)** A bond has an annual modified duration of 7.020 and annual convexity of 65.180. If the YTM decreases by 25 bps (basis point), calculate the expected price change of the bond.

**b)** A bond has a modified duration of 7.140 and annual convexity of 66.200. YTM of the bond increases by 50 bps. Calculate the expected price change.

**c)** You enter into an FRA of notional of 6 million to borrow at the 3 months underlying Libor rate, 6 months from now and lock in the rate of 6%. At the end of 6 months if the underlying rate is 6.6% over an actual period of 91 days, what will be your pay off (cash flow position) position if the payment is made at the beginning of 3 months. Consider actual/ 360 as day count convention. **10 Marks (3+3+4)**

**Q.3.**

**a)** Find the value of a default free 3 year 8% annual coupon bond callable at par one year and 2 years from now at zero volatility. Face (par) value of the bond is Rs.100. Par rate of 1 year, 2 year and 3 year maturities are 5%, 6% and 7 % respectively. From the information provided, calculate :

1. Spot rate of the par value bonds.

2. Compute the forward rate from the spot rate.

3. Value of the call ( if any) using the forward rate.

4. Will the issuer exercise call option at all? **(8 Marks)**

 **b)** What is the relation between interest rate volatility and the value of a callable bond. Explain your answer.

**(2 Marks)**

**Q.4.** Company X and Y have been offered the following rates per annum on Rs.5 crore rupee loan for 5 years

|  |  |  |
| --- | --- | --- |
| Firm |  Fixed Rate | Floating Rate |
| Company X |  6% | Libor +0. 05% |
|  Company Y |  7.25% |  Libor + .45% |

X needs a floating rate loan Y needs a fixed rate loan. Structure a deal as an investment banker (for which you will be paid 0.05%) so that it can be attractive for both X and Y. **(10 Marks)**