**JAIPURIA INSTITUTE OF MANAGEMENT, INDORE**

**PGDM**

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

**END TERM EXAMINATION, JAN-2021**

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

**INSTRUCTIONS:**

Please Answer all the Questions. Show detailed working with appropriate narration without which marks will not be awarded.

**Q1. A)** The current yield curve for a zero coupon bonds is as follows : **(7 Marks)**

|  |  |
| --- | --- |
| Maturity (Years) | YTM |
| 1 | 10% |
| 2 | 11% |
| 3 | 12% |

a) What are 1X1 FRA and 2X1 FRA ( that is, implied 1 year forward rates).

b) Assume that the pure expectation hypothesis of the term structure is correct, what will be the YTM on 1 year zero coupon bonds next year ?

c) What should be the current price of a 3 year maturity bond with a 12% coupon paid annually?

**B)** If the 3 month ( 91 days) Libor rate is 4% and the 6 month (183 days) rate is 5%, what should be 3X6 FRA. **(3 Marks)**

**Q2. a)** Find the duration of a 6% coupon bond making semi annual coupon payment if it has 3 years until maturity and has a YTM of 6%. What is the duration if the YTM is 10%. **(8 Marks)**

 **b)** A 9 year bond has a yield of 10% and duration of 7.194 years. If the market yield changes by 50 basis point what is the % change of bond price. **(2 Marks)**

**Q3.** 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)**

**Q4. a)** Find the value of a default free 3 year 6.5% annual coupon bond puttable at par one year and 2 years from now at zero volatility. Face (par) value of the bond is Rs. 100. YTM of zero coupon bond of 1 year, 2 year and 3 year maturities are 5%, 6% and 7 % respectively. **(8 Marks)**

**b)** What is the relation between interest rate volatility and the value of a puttable bond. Explain your answer. **(2 Marks)**