

## PRACTICE QUESTIONS

### INTEREST RATE DERIVATIVES: A BEGINNER'S MODULE

1. During the settlement month on a particular day, futures settlement price is Rs. 101.3. For the deliverable bond and conversion factor is 0.854 and the accrued interest is Rs. 3.33. What is the invoice price? **[ 1 Mark]**

- a) 89.84
- b) 96.93
- c) 91.52
- d) 94.32

**Correct Answer: 89.84**

2. In interest rate futures trading Conversion factor determines the **[ 1 Mark]**

- a) Theoretical value of the yield of the bond
- b) The accrued interest on the bond in consideration
- c) Price received by the seller
- d) Theoretical price of the futures

**Correct Answer: Price received by the seller**

3. If repo is 1.25% p.a. and a bond is paying coupon of 4.87% p.a., what is the cost of carry of the bond over one year? Assume the bond is trading at Rs. 100. **[ 2 Marks]**

- a) 2.61
- b) 6.76
- c) -3.62
- d) -7.08

**Correct Answer: -3.62**

4. Interest rate swaps can be used by **[ 1 Mark]**

- a) Speculators only
- b) Hedgers only
- c) Hedgers & Speculators both

**Correct Answer: Hedgers & Speculators both**

5. What is the duration of a bond for which 4.92% change in the bond price corresponds to 1.20% change in the bond's yield? **[ 2 Marks]**

- a) 5.01
- b) 6.82
- c) 4.10

d) 4.54

**Correct Answer: 4.10**

6. Which of the following would be a valid expiry month for interest rate futures in India

**[ 1 Mark]**

- a) April
- b) August
- c) March
- d) November

**Correct Answer: March**

7. If an investor is getting Rs. 100 at the end of 1 year, what is the present value of that cashflow? The assumed interest rate is 7.00% p.a. **[ 2 Marks]**

- a) 93.99
- b) 89.16
- c) 90.36
- d) 93.46

**Correct Answer: 93.46**

8. If the last coupon was paid out 135 days back and annual coupon rate is 8.90%, what is the dirty price of a bond whose clean price is Rs. 99.14? Assume face value of Rs. 100- and 30/360-day count convention. **[ 2 Marks]**

- a) 102.61
- b) 102.65
- c) 105.28
- d) 102.48

**Correct Answer: 102.48**

9. If a bond is issued at 100 and is currently trading at 96.01, then it is trading at **[ 2 Marks]**

- a) discount
- b) par
- c) Maturity value
- d) Premium

**Correct Answer: Discount**

10. Which of the following is a criterion for bonds to be part of the delivery basket **[ 1 Mark]**

- a) Maximum tenure of the bonds should be 15 years
- b) Minimum Outstanding stock should be of Rs. 10000 crores
- c) Only Central Government Bond Securities allowed
- d) Minimum maturity of the bonds should be 6 years

**Correct Answer: Minimum maturity of the bonds should be 6 years**

**11.** RBI issues bonds with different maturities **[ 1 Mark]**

- a) FALSE
- b) TRUE

**Correct Answer: TRUE**

**12.** If an investor is getting Rs. 600 at the end of 4 years, what is the present value of that cashflow? Assume interest rate is 10.00% p.a **[ 2 Marks ]**

- a) 412.30
- b) 409.50
- c) 407.82
- d) 409.81

**Correct Answer: 409.81**

**13.** An investor goes long interest rate futures at 100.13 as he feels interest rates will go down. What will be its profit / loss if the futures price moves to 99.06? **[ 1 Mark]**

- a) Profit of Rs. 2.84
- b) Loss of Rs. 1.07
- c) Profit of Rs. 1.07
- d) Loss of Rs. 2.84

**Correct Answer: Loss of Rs. 1.07**

**14.** If the last coupon was paid out 75 days back and annual coupon rate is 10.20%, what is the dirty price of a bond whose clean price is Rs. 101.66? Assume face value of Rs. 100- and 30/360-day count convention. **[ 2 Marks]**

- a) 105.70
- b) 106.05
- c) 105.57
- d) 103.79

**Correct Answer: 103.79**

15. For interest rate futures expiring on 31st December 2009, delivery can start from

[ 1 Mark]

- a) 29th December 2009
- b) 31st December 2009
- c) 29th November 2009
- d) 1st December 2009

**Correct Answer: 1st December 2009**

16. If IR futures price is 99.17 and the CTD bond 's price is 97.28. What is the net basis if the conversion factor for the CTD bond is 0.8773 and cost of carry for the bond till futures settlement is 0.09 (i.e. cost of repo minus accrued interest)? [ 3 Marks]

- a) 10.37
- b) 7.37
- c) 6.99
- d) 8.46

**Correct Answer: 10.37**

17. What is the duration of a bond for which 5.50% change in the bond price corresponds to 1.10% change in the bond's yield? [ 2 Marks]

- a) 5.00
- b) 4.28
- c) 3.52
- d) 6.32

**Correct Answer: 5.00**

18. Buyer of a forward contract will gain if the price of the underlying asset is higher than the price at which he had entered in the transaction. [ 1 Mark]

- a) TRUE
- b) FALSE

**Correct Answer: TRUE**

19. In an exchange traded derivative, Exchange is the counterparty to buyers and sellers once the trade is executed [ 1 Mark]

- a) TRUE
- b) FALSE

**Correct Answer: TRUE**

20. For a bond trading at premium to its par value [ 2 Marks]

- a) Yield < Coupon rate
- b) Yield = Coupon rate X Price
- c) Yield > Coupon rate
- d) Yield = Coupon rate

**Correct Answer: Yield < Coupon rate**

21. The purpose of conversion factor is to: [ 1 Mark]

- a) Make the seller earn profits in the bond he delivers
- b) Make the seller of the futures contract indifferent to the bond he delivers
- c) Make the seller minimise his loss for the bond he delivers
- d) Reduce the transaction cost for the buyer

**Correct Answer: Make the seller of the futures contract indifferent to the bond he delivers**

22. Settlement of forward Contracts can take place by [ 1 Mark]

- a) Cash Settlement Only
- b) Physical Settlement only
- c) Either Physical or Cash Settlement

**Correct Answer: Either Physical or Cash Settlement**

23. If a bond is issued at 100 and is currently trading at 110.99, then it is trading at [ 2 Marks]

- a) discount
- b) premium
- c) Maturity value
- d) Par

**Correct Answer: premium**

24. If an investor is getting Rs. 1000 at the end of 5 years, what is the present value of that cash flow? The assumed interest rate is 9.00% p.a. [ 2 Marks]

- a) 649.93
- b) 648.29
- c) 646.82
- d) 645.86

**Correct Answer: 649.93**

25. In interest rate futures contracts closing price of the futures contracts on a day is calculated as **[ 1 Mark]**

- a) Weighted average price of the Cheapest to deliver bond for the last half hour
- b) Weighted average price of the futures for the last half hour
- c) Weighted average price of the Cheapest to deliver bond for the last one hour
- d) Weighted average price of the futures for the last one hour

**Correct Answer: Weighted average price of the futures for the last half hour**