THE INSTITUTE OF BANKERS PAKISTAN
ISQ Examination (Winter-2011)
Financial Derivatives
Associateship

Q.1 (A) **State True or False in the answer column. Give brief reason for your selection in the space provided below the question:**

Q.1 (B) **Please write the alphabet of the selected choice in the answer column:**

Q.2 **Assume that the risk-free interest rate is 9% per annum with continuous compounding and that the dividend yield on a stock index varies throughout the year. In February, May, August and November, dividends are paid at a rate of 5% per annum. In other months, dividends are paid at a rate of 2% per annum. Suppose that the value of the index on July 31 is 1,300.**

What is the future price for a contract deliverable on December 31 of the same year ?

Q.3 **The two-month interest rates in Switzerland and the United States are 2% and 5% per annum respectively, with continuous compounding. The spot price of the Swiss Francs is \$ 0.8000. The future price for a contract deliverable in two months is \$ 0.8100.**

What arbitrage opportunities does this create?

Q.4 **It is January 30. You are managing a bond portfolio worth \$6 million. The duration of the portfolio in six months will be 8.2 years. The September Treasury bond futures price is currently 108-15, and the cheapest-to-deliver bond will have a duration of 7.6 years in September.**

How should you hedge against changes in interest rates over the next six months?

Q.5 **A \$100 million interest rate swap has a remaining life of 10 months. Under the terms of the swap, six-month LIBOR is exchanged for 7% p.a. (compounded semi-annually) . The average of the bid-offer rate being exchanged for six-month LIBOR in all swaps of all maturities is currently 5% p.a. with continuously compounding. Two months ago, the six month LIBOR rate was 4.6% p.a.**

A. **What is the current value of the swap to the party paying floating?**

B. **What is its value to the party paying fixed?**

Note : **Ignore the day count convention and use the months instead.**

Q.6 **What is the price of a European ‘call’ option on a non-dividend paying stocks. If the share price is \$52, the strike price is \$ 50, the risk-free interest rate is 12% p.a. the volatility is 30% p.a. and the time to maturity is three months?**

Q.7 Consider an exchange traded 'call' option contract to buy 500 shares with a strike price of \$ 40 and maturity in four months. Explain how the terms of the option contract changes when there is

A. A 10% stock dividend
B. A 10% cash dividend
C. A 4-for-1 stock split

Q.8 An investor is looking for arbitrage opportunities in the Treasury Bond Futures market. What complications are created by the fact that the party with a short position can choose to deliver any bond with a maturity of over 15 years?

Q.9 Explain why an FRA is equivalent to the exchange of a floating rate of interest for a fixed rate of interest.

Q.10 When the zero curve is upward sloping, the zero rate for a particular maturity is greater than the par yield for that maturity. When the zero curve is downward sloping the reverse is true. Explain why?

Q.11 Is a Bank subject to credit risk when it enters into two offsetting swap contracts? Explain.

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