# ISQ Examination (Summer-2012)
## Financial Derivatives – Associateship

**Q.** **Octavo plc needs to borrow GBP 6 million in three months time for a period of 6 months. For this type of loan financing Octavo plc can borrow at 13% in spot. The Treasurer of the company is expecting at least 2% rise in interest rates by the time the funds would be required.**

**The current price of three month's interest rate future is 87.25 The standard size of contract is GBP 500,000 while the minimum price movement is one tick, the value of which is 0.01% per year of the contract size.**

**Required: Calculate the hedge outcome if interest rates**

**A) Increase by 2.00%**
**B) Increase by 1.75%**
**C) Decrease by 1.00%**

**Note: Assume that IR Futures are 100% correlated with interest rates.**

**Q.** **A UK company owes a US supplier $ 2,000,000 payable in July. The spot GBP/USD rate is 1.5350-1.5370 and the UK company is concerned that the USD might strengthen.**

**The details on the exchange for GBP 31,250 options (cents per GBP 1) are as follows.**

| Strike Price | Calls | | | Puts | | |
|---|---|---|---|---|---|---|
| | June | July | August | June | July | August |
| 1.4750 | 6.34 | 6.37 | 6.54 | 0.07 | 0.19 | 0.50 |
| 1.5000 | 3.86 | 4.22 | 4.59 | 0.08 | 0.53 | 1.03 |
| 1.5350 | 1.58 | 2.50 | 2.97 | 0.18 | 1.25 | 1.89 |

**Requirement:**

**A) Show how traded GBP/USD currency options can be used to hedge the risk at 1.5250.**

**B) Calculate the sterling cost of the transaction if the spot rate in July is:**

**i) $1.4600-$1.4620**
**ii) $1.6100-$1.6120**

**Q.** **Calculate the price of a three-month American put option on a non dividend paying stock when the stock price is Rs. 60, the strike price is Rs. 60, the risk free interest rate 10% p.a. and the volatility is 45% per annum. Use a binomial tree with a time interval of one month.**

**Q.** **"The Black-Scholes model is used by traders as an interpolation tool". Discuss this view.**

**Q.** **Explain the no-arbitrage and risk neutral valuation approaches, to va European option using a one-step binomial tree.**

**Q.** **Which of the following can be estimated for an American option by constructing a single binomial tree:**

**A)** **Delta**
**B)** **Gamma**
**C)** **Vega**
**D)** **Theta**
**E)** **Rho**

**Q.** **Explain, why a bank might choose to discount cash flows on a currency swap at a rate slightly different from LIBOR.**

**Q.** **Distinguish between the terms "open interest" and "trading volume".**

**Q.** **Explain how margins protect investors against the possibility of a default with respect to Futures market.**

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