**MIDTERM EXAM:**

**Section I: Basic & Advance Option Strategies (50)**

Basic Option Strategies:



|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ACTION | TYPE | X | Premium | S | Payoff | Profit | BE | HPR% |
| BUY | July Call | 165 | 2.50 | 170 | 5 | 2.50 | 167.50 | 2.50/2.50=100% |
| BUY  | Oct Str | 170 | 14.40 | 180 | 10 | (4.40) | 184.40/155.60 | -4.4/14.40=-30% |
| SELL | Aug Put  | 165 | 4.65 | 145 | (20) | (15.35) | 161.35 | NA |

Puts/Calls/Straddles both Buy and Sell

Advance Option Strategies:



Bull Call Spreads/Bear Put Spreads/Bull Put Spreads/Bear Call Spreads/Butterflies

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Action | Type | X | Net Premium | S | Payoff | Profit |
| Long | May Bull Call(Buy Low/Sell High) | 155/165 | (7.10) | 170 | 10 | 2.90 |
| Long | Apr Bear Put(Buy High/Sell Low) | 150/180 | (12.60) | 140 | 30 | 17.40 |
| Long | Mar Butterfly(Buy High, Sell Avg, Sell Avg, Buy Low) | 155/175 | (2.55) | 165 | 10 | 7.45 |

**Section II – Advising on Option Strategies (20)**

Protective Puts

Covered Calls

Collars



1. You bought the 100 shares at $165 per share. You ask your broker to give you strategy to fully protect the stock at $165. What is the advice of the broker if you do not care paying for premium? To enter Protective Put
2. What is your profit/Loss and HPR% if you sell the stock at 180?

Bought the stock 165 sold at 180 = $15 per share x 100 shares = $1,500

Payoff and Profit on the option = $0 and loss of 9.20 x 100 shares = (920)

Net Profit = $580

HPR% = Profit/ Investment = 580 / (16500+920) = 580 / 17,420 = 3.33%

1. What is your profit/Loss and HPR% if you sell the stock at 140?

Bought the stock 165 sold 140 = ($25) per share x 100 shares = ($2,500)

Payoff and Profit on the option = 25 – 9.20 = 15.80x100shares = 1,580

Net Profit/Loss = (920)

HPR% = -920 / $17,420 = -0.0528 = -5.28%

1. You bought the 100 shares at $165 per share. You are in the process of selling the stock if it gets up to $180. What strategy will the broker recommend taking highest the possible profit if the stock to or above 180 by May? Cover Call
	1. What is your profit/Loss and HPR% if you sell the stock at 200?

Bought 165 and sold 200. Profit $35 x 100 = $3,500

Option Payoff / Profit = (20) payoff + 4.45 = (15.55) x 100 shares = -1,555

Net Profit 3500 –1,555 = $1,945

HPR = 1,945 / (16,500 – 445) = 1,945 / 16,055 = 12.11%

**SECTION III – Valuation Section (30)**

Bionomial Option Pricing (single period for both Probability and Leverage methods) – Call Option





Bionomial Option Pricing (two-period Probability method with and without dividends) for both calls and puts



Black Scholes Option Pricing for both call and put option

 and



