

Chapter Tests of SFM of CA Ashish Lalaji 9825856155

SFM Test of Options

Maximum Marks: 30

Time Allowed: 1 hour

All questions are compulsory

Q 1

- (a)** Current MPS is Rs.105. The share price after 3 months may be Rs.110 or Rs.90. CCRI is 7% p.a. What is the fair value of call option if you want to sell call option having strike price of Rs.100? Use Risk Neutral Approach.

Consider following values for your computation:

$$\begin{array}{cc} e^{0.015} & e^{0.0225} \\ 1.015 & 1.023 \end{array}$$

(6 Marks)

- (b)** From the following data for certain stock, find the value of a call option:

Price of stock now	Rs.80
Exercise price	Rs.75
Standard deviation	0.40
Maturity period	6 months
Annual interest rate	12%

For your calculations consider the following:

Number of S.D. from Mean (z)	Area of the left or right (two tail)
0.25	0.8026
0.30	0.7642
0.55	0.5824
0.60	0.5486

$$e^{0.12 \times 0.5} = 1.062 \qquad \ln 1.0667 = 0.0646$$

(8 Marks)

Q 2

- (a)** The market received rumour about ABC corporation's tie-up with a multinational company. This has induced the market price to move up. If the rumour is false, then ABC corporation stock price will fall dramatically. Call option at strike price of Rs.42 is trading at Rs.3 premium and put option at same strike price at Re.2 premium.

Speculator A believes share price shall rise to Rs.48 with minimum chance of falling to Rs.36. Speculator B opines share price shall fall to Rs.36 with minimum chance of rising to Rs.48.

Speculator A creates a strap and speculator B a strip.

Determine net pay-off of each speculator.

(6 Marks)

(b) Fill up the blanks in the following "Break Even Price" table —

Case	Option	Party	Exercise Price	Premium	Market Price
1	Call	Buyer		20	160
2		Seller	2,000	300	1,700
3		Buyer	50	10	40
4		Seller	80	10	90
5	Put	Buyer		50	250
6		Seller	320	50	370
7	Call	Buyer	680	100	
8	Call	Seller		80	580
9	Put	Buyer	1,200		1,020
10	Put	Seller		330	1,870

(5 Marks)

(c) You as an investor had purchased a 4-month put option on the equity shares of X Ltd. of Rs.10, of which the current market price is Rs. 132 and the exercise price Rs. 150. You expect the price to range between Rs.120 to Rs.190. The expected share price of X Ltd. and related probability is given below:

MPS (Rs.)	120	140	160	180	190
Pi	.05	.20	.50	.10	.15

Compute the following:

- (i) Expected Share price at the end of 4 months.
- (ii) Value of Put Option at the end of 4 months, if the spot price prevails.
- (iii) In case the option is held to its maturity, what will be the expected value of the put option?

(5 Marks)