Assignment 2.2

PRIYANKA ARORA
230799

Q1)

May 2024 Spot price	Profit / Loss
1400	+650000
1500	+550000
1560	+490000
1600	+450000
1800	+250000
2050	0
2200	−150000
2300	−250000
2400	−350000

Q2) a) Profit = \$3000 (\$0.60×5000)

b) Profit = \$7500

c) 300×40 index pts = ~~Profit~~ Loss
⇒ 12000 index pts

Total Loss = 12000 × 25 SA dollars
= 300,000 SA dollars.

d) 1500 × 15 loss

RMB 22500 loss

Q3) Key difference are future prices are locked today and exchange happen later whereas for spot contracts exchange happens immediately at current market price.

For future contracts trades enter a contract on a commodity exchange. Trader maintains a margin with the exchange. Before expiry traders usually close the posn.

Commodity exchange provide standard contracts, enforcing rules, handling settlement & ~~d~~ reduce risk (default)

Q4)

→ Investor makes a profit if stock price falls below \$37 when option matures

→ Option is exercised if stock price at maturity falls below \$40.

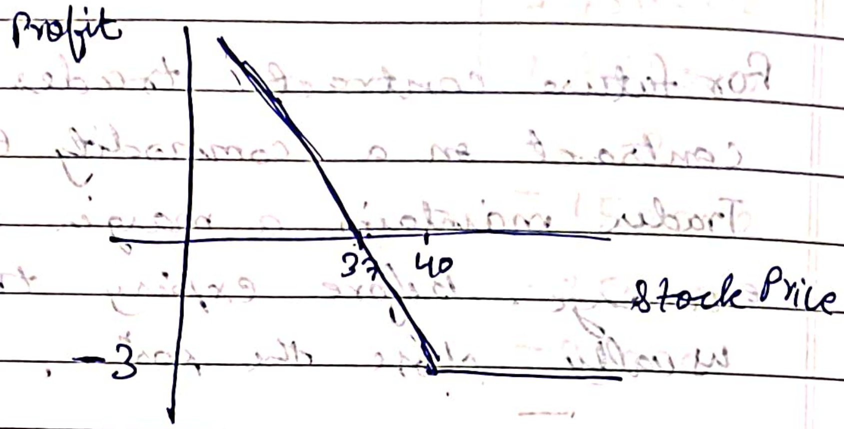
when

Price <37 $37-S$ is profit

Price $=37$ Profit $=0$

Price >37 & less than 40 $(S-37)$, loss

Price ≥ 40 -3



5) Stock spot price at time t is S_T and long forwat contract at time T for price P.

Gain if $S_T > P$

$\Rightarrow S_T - P$

Gain if $S_T < P$

$\Rightarrow (P - S_T) + (S_T - P) = 0$

So terminal value $= \max(S_T - F, 0)$

same as European call

$$C + Ke^{-rT} = P + S_0$$

$$S_0 = Fe^{-rT}$$

$$F = K$$

$$\Rightarrow C = P$$

c)

$$20 + (120)e^{-rT} = 5 + (130)\cancel{e^{-rT}}$$

$$\cancel{15 = 10e^{rT}}$$

$$e^{-r} = \frac{115}{120}$$

$$r \approx 0.0425$$

$$\underline{r = 4.25\%}$$