Question 2:

(a) Position → long, lot size = 5000 bushels

strike price = \$5.2

Close price = \$5.8

$$\text{Profit} = (5.8 - 5.2) \times 5000 = \$3,000$$

(b) Position → short, lot size = 37,500 pounds

strike price = \$1.6 per pound

close price = \$1.4 per pound

$$\text{Profit} = 37,500 \times 0.2 = \$7,500$$

(c) Position – short, contract size = SA\$25 per index point

contracts = 40

initial price = 7500

final price = 7800

$$\text{loss} = 40 \times SA\$7500 = SA\$300,000$$

(d) position → long, contracts 5 metric tonnes

no. of contract → 3

initial price – RMB 15,000 per tonne

final price – RMB 15,800 per tonne

$$\text{Profit} = 800 \times 5 \times 3 = RMB\ 12,000$$

Question 5:

if $F \rightarrow$ forward price at setup

$S_T \rightarrow$ spot price at maturity

(1) Long forward contract payoff

$$S_T - F$$

(2) Long put option payoff

$$\max(F - S_T, 0)$$

Total payoff of portfolio: $(S_T - F) + \max(F - S_T, 0)$

Now, consider 2 cases:

- if $S_T > F \rightarrow$ put expires worthless $\rightarrow$ Total $= S_T - F$
- if $S_T < F \rightarrow$ put payoff $= F - S_T \rightarrow$ Total $= (S_T - F) + (F - S_T) = 0$

So, Terminal payoff $= \max(S_T - F, 0) \Leftrightarrow$ long European call with strike F.