You manage a plant that mass-produces engines by teams of workers using assembly machines. The technology is summarised by the production function.

$$q = 5KL$$

Where q is the number of engines per week, K is the number of assembly machines, and L is the number of labor teams. Each assembly machine rents for $r = \$10000$ per week, and each team cost $w = \$5000$ per week. Engine cost are given by the cost of labor teams and machines, plus \$2000 per engine for raw materials. Your plant has a fixed installation of 5 assembly machines as part of its design.

Q(1) What is the marginal cost for producing q engines 1/1

- ○ 1100
- ◉ 2200
- ○ 3300
- ○ 4400

Q(2) How many labor teams are required to produce 250 engines 1/1

- (●) 10
- ( ) 20
- ( ) 30
- ( ) 40

Q(3) What is the average cost per engine if the firm produces 250 engines. 1/1

- ( ) 800
- ( ) 2000
- (●) 2400
- ( ) 2880

Q(4) You are asked to make recommendations for the design of a new production facility. What capital/labor (K/L) ratio should the new plant accommodate if it wants to minimize the total cost of producing at any level of output. 2/2

- (●) 0.5
- ( ) 2
- ( ) 2.5
- ( ) 4

Q(5) The cost of flying a passenger plane from point A to point B is $50000. The airline flies this route four times per day at 7 Am, 10 Am, 1 Pm, and 4 Pm. The first and last flights are fulfilled 1 to capacity with 240 people. The second and third flights are only half full. Find the average cost per passenger for each flight. 1/1

- (●) $208.33, $416.67
- ( ) $378, $516.80
- ( ) $308.47, $216.9
- ( ) $251, $326

Q(6) Suppose the airline hires you as a marketing consultant and wants to know which type of customer it should try to attract, what advice would you offer. 1/1

- ( ) Peak flights
- ( ) Night flights
- (●) Off-peak flights
- ( ) Can't say

The market demand curve D_m is given by $P = 100 - Q_1 - Q_2$, where Q_1 is the amount of output Samsung produces and Q_2 is LG's level of output. The marginal cost of each firm is $10.

Q(7) What is the equation of Samsung reaction function 2/2

$Q_1 = 20 - Q_2/2$

Option 1

$Q_1 = 20 - Q_2$

Option 2

$Q_1 = 45 - Q_2/2$

Option 3

$Q_1 = 55 - Q_2/2$

Option 4

Q(8) Compute the Cournot equilibrium quantities in this market. 2/2

30

25

28

20

Q(9) Compute the Cournot equilibrium price in this market. 1/1

- (●) 40
- ( ) 60
- ( ) 70
- ( ) 75

A drug company has a monopoly on a new patented medicine. The product can be made in either of the two plants. The cost of production for the two plants are $MC_1 = 20 + 2Q_1$ and $MC_2 = 10 + 5Q_2$. The firm estimates of demand for the product is $P = 20 - 3(Q_1 + Q_2)$.

Q(10) How much should the firm plan to produce in plant - 1 (Q^1) 1/1

- (●) 0
- ( ) 0.55
- ( ) 0.91
- ( ) 0.98

Q(11) How much should the firm plan to produce in plant - 2 (Q^2) 1/1

- [ ] 0
- [ ] 0.55
- [x] 0.91
- [ ] 0.98

Q(12) At what price should it plan to sell the product 1/1

- [ ] $7.85
- [ ] $11.46
- [x] $17.27
- [ ] $23.66