1) With increase in wage rate (w), what happens to optimal amount of labor (L) which maximizes profit in the short run? **1 point**

- Increases
- Decreases first and then increases
- Decreases
- Remains constant

2) Match the following pairs correctly. **1 point**

A. Monopsony	i.	Many buyers, many sellers
B. Monopoly	ii.	One buyer, many sellers
C. Perfect Competition	iii.	Many buyers, a few large sellers
D. Oligopoly	iv.	Many buyers, one seller

- A-i, B-ii, C-iii, D-iv
- A-ii, B-i, C-iv, D-iii
- A-iv, B-iii, C-i, D-ii
- A-ii, B-iv, C-i, D-iii

3) **Comprehension:** A firm with the production function $f(x_1, x_2) = min(x_1, 2x_2)$, where x_1 is the amount of input 1 and x_2 is the amount of input 2 that the firm uses in its production. Notice that the firm uses the inputs in fixed proportions, hence the given type of production function. **1 point**

What returns to scale does this production function exhibit

- Increasing
- Decreasing
- Can't say with the given information set
- Constant

4) If the firm faces input prices as (w_1, w_2), what is the cheapest way to produce 10 units of final good using the inputs as per the production function? **1 point**

- $10w_1 + 5w_2$
- $min(w_1, 2w_2)$
- $min[(1/2)w_1, w_2]$
- $2w_1 + w_2$

5) What will be the minimum cost of producing the final good, y, if the firm is faced by input prices (w_1, w_2) ? **1 point**

- $(w_1 + w_2/2)y$
- $min(w_1, w_2/2).\, y$
- $w_1 y + w_2 y$
- $max(w_1, w_2).\, y$

6) Given a well-behaved production function $q = f(K, L)$, with diminishing marginal productivities of labour (L) and capital (K), i.e., f_{KK} and f_{LL} are negative; what we could conclude about MRTS (Marginal Rate of Technical Substitution)? **1 point**

- MRTS is always positive
- MRTS is either zero or positive
- MRTS is always negative
- There is conclusion that we can draw about MRTS with given information

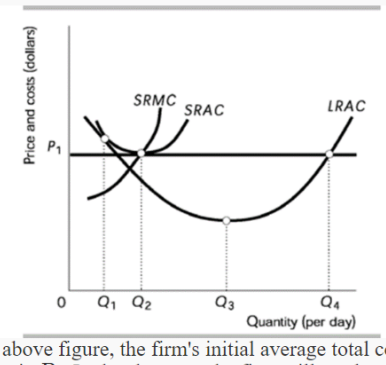
7) Suppose production function of a firm using z_1 and z_2 as the two inputs is $f(z_1, z_2) = \sqrt{z_1 + z_2}$ What is the supply function for this firm if input price for z_1 is greater than input price for z_2. Assume price for final good 'q' as numeraire (p=1). **1 point**

- $q = 1/(4w_1)$
- $q = 1/(4\sqrt{(w_1 + w_2)})$
- $q = 1/(w_1 + w_2)$
- $q = 1/(2w_2)$

8) In Q.7, what will be the profit function for the firm? *1 point*

- $\pi(p, w) = 1/(4w_2)$
- $\pi(p, w) = 1/(2w_1)$
- $\pi(p, w) = 1/(4\sqrt{(w_1 + w_2)})$
- $\pi(p, w) = 1/(4w_2 + 2w_2)$

9) *1 point*



In the above figure, the firm's initial average total cost curve is SRAC with an initial marginal cost curve of SRMC. The price of the product is P_1. In the short run the firm will produce output equal to the amount:

- Q_2
- Q_1
- Q_4
- Q_3

10) In fig.1, when the firm has reached its long-run equilibrium position, it will produce output equal to the amount: *1 point*

- Q_4
- Q_3
- Q_2
- Q_1