Centre for Open and Lifelong Learning

Guideline Solution for Assignment 2

Semester 1: 2015

Managerial Economics (MEN311S)

TUTORIAL LETTER 01/2015
Dear Student,

I trust that you are well.

The results of the first assignment are generally good, with the exception of a few who did not do so well. A number of students did absolutely brilliant! Congratulations to those of you that did well!

The purpose of this letter is, *inter alia*, to make certain observations regarding your answers to the questions as contained in the aforesaid assignment in an attempt to guide you to find the most appropriate answers and/or solutions.

**TAKE NOTE:**

- **Unit 3** in the study guide deals with Consumer Behaviour. This topic was extensively dealt with in Intermediate Microeconomics and therefore, it is not necessary to cover it again in Managerial Economics. It means you do not need to consider Unit 3 for assessment purposes (i.e assignments and examinations) for this course.
- **Additional notes and exercises** will be forwarded to COLL to be placed on the COLL website for your access. Kindly be aware that these are just summaries and not the whole content. This means you still need to read the prescribed and/or recommended materials for a deeper understanding of the course content.

*Remember that feedback tutorial letters form part of your study material for examination purposes.*

Firstly, some general comments:

1. Some students tend not to **read a question** in order to establish exactly what is asked and, as a result, many have lost marks. Also observe the **mark allocation** in order to decide how to tackle the question.
2. A common mistake of students, and a consequence of rushing through the assignment just to finish it, is that they give the bare minimum facts. Please remember that in an assignment you are required to provide far more detail than you would be required to do in an examination. The reason is that you have both time and resources, such as the
study-guide and the marker-tutor, available for your preparation, while in the examination it is understood that you are under time constraints and can rely only on your memory.

3. It is very important to proofread the assignment answers before you submit it. Ask yourself: “Have I answered the question?”

4. Do not omit questions. There is just no excuse for this in an assignment. Even if you are unsure of the answer, at least try.

5. A frequent enquiry is how much time should be spent answering particular sections of a problem question, and how much detail should be provided. **Always be guided by the mark allocation.** If an exam is 60 minutes and there are 100 marks, then you should spend approximately 30 minutes answering a 50-mark question or approximately 12 minutes answering a 20-mark question etc. In the time available, provide as much relevant information as possible; irrelevant information will be awarded zero marks.

6. Keep your hand-writing legible; if we cannot read what you have written, we cannot mark it.

Good luck

**ASSIGNMENT 2**

**QUESTION 1  [10 Marks]**

1. E

2. ALL ANSWERS ARE CORRECT

3. C

4. D

5. B

6. B

7. A

8. C

9. A

10. B
QUESTION 2  [20 Marks]

a) The firm should choose an input combination such that:

\[ \frac{\text{MP}_L}{P_L} = \frac{\text{MP}_K}{P_K} \]

Since \( Q = 2.5(LK)^{0.5} \) we get the marginal products of the two inputs as follows:

\[ \text{MP}_L = \frac{\partial Q}{\partial L} = 1.25 \left( \frac{K}{L} \right)^{0.5} \]

\[ \text{MP}_K = \frac{\partial Q}{\partial K} = 1.25 \left( \frac{L}{K} \right)^{0.5} \]

So, if \( \frac{\text{MP}_L}{P_L} = \frac{\text{MP}_K}{P_K} \) then,

\[ \frac{1.25(K/L)^{0.5}}{2} = \frac{1.25(L/K)^{0.5}}{0.50} \]

Multiplying both sides of this equation by \( (\frac{K}{L})^{0.5} \) we get:

\[ \frac{1.25K}{2L} = \frac{1.25}{0.50} \]

\[ 0.625K = 2.5L \]

Making \( K \) the subject of the equation we get:

\[ K = 4L \]

And since \( Q = 20 \), we can rewrite the production function as follows:

\[ 2.5(LK)^{0.5} = 20 \]

Substituting \( K \) by \( 4L \) we get:

\[ 2.5[4L(4L)]^{0.5} = 20 \]
Simplifying this equation gives:

\[ L = 4 \]

Thus,
\[ K = 4L = 4(4) \]
\[ K = 16 \]

This means that the firm should hire 4 workers and 16 machines to minimize cost.

b) \[ \frac{10}{100} \times 4 = 0.4 + 4 = 4.4 \]
\[ Q = 2.5\sqrt{4.4(16)} \]
\[ = 2.5\sqrt{70.4} \]
\[ \approx 20.98 \]
Increase in output:
\[ \frac{20.98}{20} \times 100 = 104.88\% - 100\% = 4.88\% \]

QUESTION 3  [20 Marks]

1. a) \[ \pi = -50 + 200Q - 20Q^2 \]
\[ M\pi = 200 - 20Q \]
Setting \( M\pi = 0 \)
implies:
\[ Q = 10 \]

b) \[ \pi = -100 + 300Q - 4Q^3 \]
\[ M\pi = 300 - 12Q^2 \]
Setting \( M\pi = 0 \)
implies:
\[ Q = 5. \]
The second derivative is negative, so
\[ Q = 5 \] is the profit-maximizing level of output.

2. Define market power, and explain why it is important to the study of managerial economics.  

[4]
• Market power is the ability of a firm to raise its price significantly above the competitive price level and to maintain this high price profitably for a considerable period.
• Pricing power is a source of economic profit for the firm but means a higher than competitive price (and lower consumption and consumer surplus) for buyers.

3. What is the concentration ratio? How is it used to measure oligopoly? What are its drawbacks? [6]
   • The concentration ratio is the percentage of total sales accounted for by the top number (4, 8, or 20) of firms.

THE END