UNIRAZAK
UNIVERSITI TUN ABDUL RAZAK

FINAL EXAMINATION
NOVEMBER 2023

COURSE TITLE **INTERMEDIATE MICROECONOMICS**

COURSE CODE **TECO3213**

DATE/DAY **22 FEBRUARY 2024 / THURSDAY**

TIME/DURATION **09:00 AM - 11:00 AM / 02 Hour(s) 00 Minute(s)**

INSTRUCTIONS TO CANDIDATES :

1. Please read the instruction under each section carefully.
2. Candidates are reminded not to bring into examination hall/room any form of written materials or electronic gadget except for stationery that is permitted by the Invigilator.
3. Students who are caught breaching the Examination Rules and Regulation will be charged with an academic dishonesty and if found guilty of the offence, the maximum penalty is expulsion from the University.

(This Question Paper consists of **2** Printed Pages including front page)

*****DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE TOLD TO DO SO*****

This question paper consists of THREE (3) questions. Answer ALL questions in the answer booklet provided. [100 MARKS]

QUESTION 1 (50 marks)

XYZ Ltd. has a short-run production function of $Q = \frac{1}{3}L^{0.25}$, where L indicates labour quantity and labour cost is RM3 per unit. The price of its output is RM48.

a) Derive the short-run profit function of XYZ Ltd. (8 marks)

b) Find the quantity of labour that maximizes profit. (12 marks)

c) Compute the amount of maximum profit earned. (8 marks)

d) Is there a quantity of labour that can maximizes revenue? If yes, compute the revenue-maximizing quantity. If no, explain why. (7 marks)

e) In the long-run, the production function becomes $Q = \frac{1}{3}L^{0.25}K^{0.75}$ where K indicates quantity of capital and the unit cost of capital is RM4 per unit. Find the optimal quantity of labour in terms of quantity of capital that maximizes profit. (15 marks)

QUESTION 2 (35 marks)

FRM Ptd. Ltd. is a monopoly supplying dry batteries to two group of customers, i.e., corporate and individual. The inverse demand curve for corporate is $P_{co} = 20 - 0.25Q_{co}$, while the inverse demand curve for individual is $P_{ind} = 25 - 0.25Q_{ind}$.

a) Assuming the marginal cost to sell to both group of customers is identical at RM5.50, determine the optimal quantity and price of output to be sold to each group of customers in order to maximize profit. (10 marks)

b) Based on the answer of part (i) above, determine the maximum profit that FRM Ptd. Ltd. can earn. (8 marks)

c) Explain what the necessary conditions are that need to prevail in order for FRM Ptd. Ltd. to sell to the two group of customers at different prices. (7 marks)

d) Compute the optimal mark-up that maximizes profits for both group of customers, i.e., corporate and individual. (10 marks)

QUESTION 3 **(15 marks)**

Figure 1 below shows that utility function of a risk-adverse individual, which takes on a concave curve.

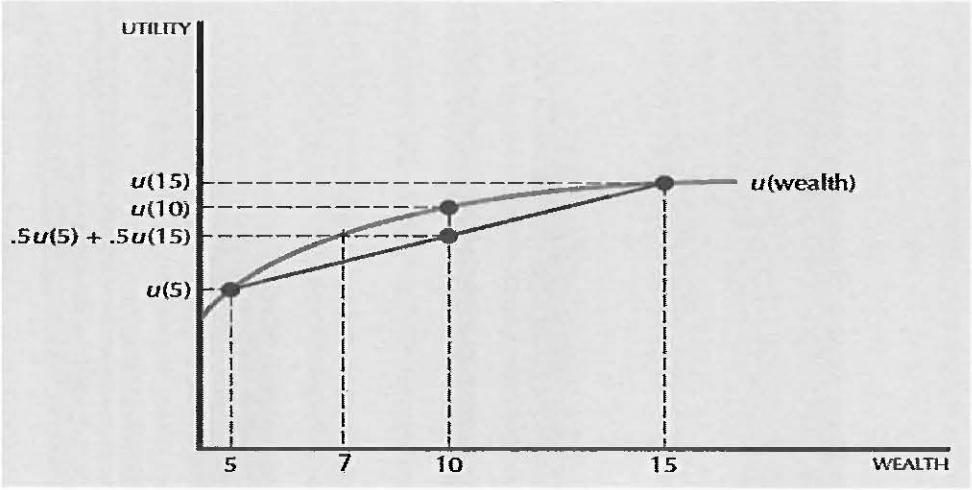

Figure 1: Utility function of a risk-adverse individual

a) Using Figure 1, explain why the utility function of a risk-adverse individual is necessarily concave. (15 marks)

***** END OF QUESTION PAPER *****