

MBA (FT) – October/November 2017
MBAFT-6103 Managerial Economics

Time: 3 Hours

Max. Marks: 50

Instructions

This is a closed book examination. Calculators are allowed. Answer any five out of six questions. All questions carry equal 10 marks

1. The production function for a handloom garment manufacturer is given by $Q = (L^{1/2} + K^{1/2})^2$, where L is the amount of labor and K is the amount of capital used in production. Cost of labor is 1 and cost of capital is 10.
 - i. Does this production function satisfy the law of diminishing marginal product of labor over all values of labor input? Explain your answer. Draw an isoquant for $Q = 100$.
 - ii. Define elasticity of substitution. Calculate the elasticity of substitution for this particular production function for $K = 10$ and $L = 10$.
 - iii. Solve manager's total cost minimization problem when the manager is asked to produce 10,000 pieces of garments. Determine the optimal quantity of labor and capital chosen by the manager. Show the optimal choice graphically. What is the total cost of inputs at the optimal choice?

3+3+4

2. Assume that the market for coronary stents in India is competitive. The domestic demand is given by $Q_d = 1000 - P$ and domestic supply is given by $Q_s = 600 + P$.
 - i. Calculate the equilibrium price and quantity in the domestic market. Show graphically. Find out the consumer and producer surpluses numerically and graphically.
 - ii. Following outcry from patient groups regarding the high price of stents, the National Pharmaceutical Pricing Authority caps the price to 30. What will be the impact on market price and quantity sold in the market? What will be the impact on consumer and producer surplus? Discuss for this particular case.
 - iii. Is this intervention a desirable one? Discuss the pros and cons of using such a policy tool in a competitive market framework.

3+5+2

3. Short-run and Long-run

- i. An airline transportation consultant offers the CEO of *Bluestar*, a struggling new commercial airline company, the following advice regarding the airline's high operation costs in the current quarter: "You don't have enough aircraft to operate efficiently. However, at some point in the long run you will have the opportunity to add aircrafts to your fleet in order to reduce your total costs and still carry the same passenger load." Does this advice make any sense? Explain.
- ii. What is the difference between long-run total cost and short-run total cost? Explain using graphs.
- iii. In a competitive market, explain the concept of shutdown price using the appropriate cost curves. State all assumptions clearly particularly those regarding the composition of total cost. Define the long-run equilibrium for a perfectly competitive market.

3+3+4

4. Market Power

- i. Explain the concept of first-degree price discrimination with example and appropriate graphs. Is first degree efficient in terms of total surplus?
- ii. Explain the idea behind a kinked demand. In what kind of market can we expect such a demand? What are the implications for those firms who face such demand curves?
- iii. For a special chocolate-filled candy, consumer preference is given by two demand curves: $Q = 200 - 2P$ and $Q = 125 - P$. The total cost of producing such candies is $TC = 10,000 + 0.4Q^2$. There is only one supplier in the market. Find out the profit maximizing quantity. Also find the market price. Show the price and quantity using all the relevant graphs. Does the MR curve have a vertical segment? If yes, then what are the upper and lower bounds of marginal revenue for which the quantity and price remains unchanged? Answer numerically and graphically.

3+2+5

5. *Amaron Corp.* and *Fliptop Corp.* are competing in high-grade carbon fiber market in USA. Both firms sell identical grades of carbon fiber. The challenge for each firm is to decide upon a capacity expansion strategy. *Amaron* has three choices: no expansion (NE), modest expansion (ME), huge expansion (HE). *Fliptop* has two choices: no expansion (NE), modest expansion (ME). This is a simultaneous move game. If both *Amaron* and *Fliptop* decide to choose NE then each receives a payoff of 1013. If both *Amaron* and *Fliptop* decide to choose ME then each receives a payoff of 900. If *Amaron* decides to do NE and *Fliptop* decides to do ME, the *Amaron's* payoff is 844 and *Fliptop's* payoff is 1125. If *Amaron* decides to do ME and *Fliptop* decides to do NE, the *Amaron's* payoff is 1125 and

Fliptop's payoff is 844. If *Amaron* decides to do HE and *Fliptop* decides to do NE, the *Amaron's* payoff is 1013 and *Fliptop's* payoff is 506. If *Amaron* decides to do HE and *Fliptop* decides to do ME, the *Amaron's* payoff is 675 and *Fliptop's* payoff is 450.

- i. Draw the game matrix. What is a strictly dominated strategy? Does either of the players of the above game have a strictly dominated strategy? If yes, then mention those. For each strictly dominated strategy, mention the strictly dominating strategy.
- ii. Define Nash Equilibrium. Find all the Nash Equilibrium of this game. Show the method you have used to find Nash Equilibrium.
- iii. What do these payoffs represent in terms of what you have learned in the theory of firm? What can the players do to change the payoffs of the game? Can a change in payoffs change the equilibrium of the game? Explain.

3+4+3

6. Write comments on any *two*.

- i. For a linear demand curve, explain the variation in total revenue as total quantity increases using the concept of price elasticity of demand and marginal revenue.
- ii. Compare sales maximization versus profit maximization using both total revenue/total cost and marginal revenue/marginal cost approaches.
- iii. Properties of a Cobb Douglas production function.

5+5