

Time : 3 Hours

Max. Marks : 50

This is a closed book examination. Calculators are allowed. The paper has two parts. Questions 1 and 2 in Part I are compulsory. Answer any two questions from Part II.

## PART I: Answer Questions 1 and 2 (Compulsory)

1. i. "Giffen good must be an inferior good, but an inferior good need not be a Giffen good." Ascertain if this statement is true or false. Use indifference curves explain your answer.
- ii. Calculate price elasticity of demand for a movement from point B to point D and from point D to point B and midway between them. Can you calculate point price elasticity at point C? If you cannot, explain why not. If you can, explain and find out the value. (Hint: do you know the demand function?)

Price	Quantity	Point
8	0	A
7	1000	B
6	2000	C
5	3000	D

- iii. SUV sales (in the USA) changes with changes in gasoline (gas) prices. Suppose the price of gas has gone up by 66%. At the same time manufacturers rebates on SUVs are increased by \$500, which amounts to a 1.4% decrease in price, based on the average SUV price of \$36,000. What does this imply for SUV sales? Estimate. Price elasticity of demand for SUV is -2.5. Cross elasticity of the demand for SUVs with respect to gas price is -0.25.

5+5+5

2. You are the manager of *Swanky Hanky*, a company that manufactures handkerchiefs. The market for handkerchiefs is perfectly competitive. Using time-series data you have calculated the average cost function of the company to be:
- $$AVC(q) = 20 - 0.003q + 0.00000025q^2$$
- i. Assume that the fixed cost of production is 0. Find the shutdown price. Show the supply curve of *Swanky Hanky* in an appropriate graph.
- ii. The market price of handkerchiefs is Rs. 20. What is the profit maximizing level of output for your firm? What is the average cost of production at the profit maximizing level? Give numerical answers as well as use graphs.
- iii. What will happen in the long-run? Answer in terms of market price, quantity, number of firms and the production at your firm. Assume that the demand function in this market is:  $Q_d = 83,000 - 1,000P$  and is expected to remain the same in the long-run. Use appropriate graphs.

5+5+5



PART II: Answer Any Two Questions (from questions 3 – 5)

3. Market Intervention

- i. Explain why perfectly competitive markets are considered the most “efficient”. What is the definition of efficiency (as used in the above statement)? Why do economists suggest market intervention in case of certain goods (like, health care services)? Explain using appropriate graphs
- ii. The supply for daily labor (provided by unskilled and semi-skilled workers) is given by:  $L_s = 100w - 2,000$ , where  $L_s$  is the labor supply expressed as a function of hourly wage rate  $w$ . The demand is given by  $L_d = 10,000 - 200w$ . The Government feels that the equilibrium wage rate is too low and decides to have a minimum wage of Rs. 45. What is the efficiency impact of such an intervention? Are the suppliers of this kind of labor better off with this particular form of Government intervention? Explain using appropriate numerical tools and graphs. If your firm uses this particular form of labor for production, how will this affect your profitability in the short-run? What are the long-run implications?

4+6

4. Market Power

- i. Assume that *Suboxone* is the only mild-opioid for relieving pain. Purdue Pharma holds this particular patent. On the other hand, Bayer manufactures aspirin, which is not covered by patents and is one of the several drugs that relieve mild pain. Compare the difference between price and marginal revenue for the two drugs, Purdue's *Suboxone* and Bayer's aspirin. Use appropriate graphs. If you are making any assumptions about demand and supply, state them clearly.
- ii. Ms. Gaga is the only plumber in the remote mountainous village of *Budbuda* (population 100). Her fixed cost is 200 and marginal cost is 2. The demand function for her service is:  $Q_d = 88 - 4P$ , where  $Q_d$  is the total unit of service demanded (per day) and  $P$  is the price of service. If she knows each member of her village very well and she wants to price discriminate, what price can she charge for her services and how many units of service will she provide? What is the consumer surplus in this case? Can you also find the producer surplus (or is it not possible here)? Is there a relationship between producer surplus and profit? Is there a dead-weight loss due this particular form of price discrimination? Will the people of *Budbuda* be better off if Ms. Gaga charges the same price to all? Explain. Use appropriate graphs.

4+6

5. Write short notes (mentioning every assumption using appropriate matrices/diagrams):

- i. Nash equilibrium and strictly dominated strategies in a Prisoner's Dilemma type of simultaneous move game (complete information).
- ii. The law of variable proportions, explained through the behavior of total, average and marginal product (of production function).

5+5