



1. Among the many environmental problems facing the United States is how to dispose of the vast amounts of garbage generated each day by households and businesses. In 1960, Americans discarded an average of 2.6 pounds of trash per person per day, but today the number is 3.8 pounds. As the volume of garbage grows, existing disposal sites are filling up, and it is becoming increasingly difficult to find new locations near urban areas for landfills.

One small community used the law of demand to ease its garbage collection problem. Residents of Perkasio, Pennsylvania, were paying an annual fixed fee of \$120 per resident for garbage collection and discarding a daily average of 2.2 pounds of trash per person. Because the collection fee was fixed, the additional expense to residents of trash disposal was zero, and they had no financial incentive to conserve on the amount of trash they produced.

Perkasio began charging by the bag for garbage collection. The city required that all trash be placed in special bags sold by the city. For example, a large bag had a capacity of 40 pounds and sold for \$1.50. Thus, the marginal cost to residents of generating additional trash increased from zero to about four cents per pound. Garbage that was not in an approved bag was not picked up. In addition, the city introduced a recycling program. Each household was given buckets to be filled with cans and bottles that were picked up every week. The city also arranged for newspapers to be collected once a month.

The result was predictable- people began to dump less trash. During the first year the program was in effect, trash collections per person declined to less than one pound per day. Perkasio citizens benefited because they paid 30% less than before, and the city reduced its garbage collection costs by 40%.

- State the law of demand. How did it affect the residents of Perkasio Pennsylvania?
 - What measures did the city adopt that resulted in reduced garbage and thereby reduced price of disposal for each household?
 - How can the substitution and income effect be related to reduced garbage in Perkasio Pennsylvania?
- [8]

2. How do the four basic assumptions of consumer behavior determine the nature of Indifference curves?
- [4]

3. The production function for a steel company is as follows:

$$Q = 20K - K^2 + 12L - 0.5 L^2$$

Price per unit of K is \$ 4000 and Price per unit of L is \$ 2000. Tentative budget is \$ 28000.

Specify the efficient mix of K and L such that output is maximized subject to the budget constraint.

[5]

4. Based on a consulting economist's report, the total cost and marginal cost functions for Advanced Electronics, Inc. are
 $TC = 200 + 5Q - 0.04 Q^2 + 0.001 Q^3$
 $MC = 5 - 0.08 Q + 0.003 Q^2$
- Determine the average variable cost (AVC).
 - Determine the rate of output that results in minimum AVC.
 - If fixed cost increases to \$ 500, what output rate will result in minimum AVC? [4]
5. Suppose the own price elasticity of market demand for retail gasoline is -0.9, the Rothschild index is 0.6, and a typical gasoline retailer enjoys sales of \$ 1.2 million annually. What is the price elasticity of demand for a representative gasoline retailer's product? [2]
6. Lyon Concrete is a monopoly supplier of concrete in Northern Arkansas. Demand for the firm's concrete is given by: $P = 110 - 4Q$. Marginal cost is constant and equal to \$ 10. What is the profit maximizing price and output? [4]
7. A train carries passengers between two points, A and B, with no halt in between. Commuters from location C, which is mid way between A and B, use buses to reach A or B, and the bus fare per head to either of the two destinations is \$ 125. The providers of the train service are considering introduction of a halt at C. The additional or incremental costs to be incurred are setting up of the railway station and related facilities. All other provisions, such as railway line, coaches, driver and attendants on the train already exist. Without the halt at C, the costs of the railway line, coaches, driver and attendants were distributed between locations A and B, and got reflected in the fares charged to commuters from these locations. Now, with the introduction of a halt at C, the fully - distributed cost school of thought would advocate reallocation of the common costs amongst A, B and C. With this, the fare that a commuter from C would have to pay would come to \$ 150. On the other hand, if only the incremental costs incurred in introducing a halt at C were considered, the fare from C would be \$ 100. What should be the approach to pricing? [4]
8. Explain any two responses of government towards externalities. [2]
9. How does a manager of a revenue maximizing firm respond to the profit tax? [3]
10. Differentiate between the following: [4]
- GDP and GNP
 - Transactions money and broad money



BITS Pilani
Dubai Campus

Second Semester 2011-2012
TEST -II (OB)

Course: Principles Of Economics

Course No. ECON C212

Max marks: 20

Date: 08-05-2012

Year: IV

Weightage: 20%

Time: 50 Minutes

1. The Evolution of Input Decisions in the Automobile Industry

An interesting account of the evolution of input decisions is provided by General Motors – Fisher Body relationship, which has been extensively documented by Benjamin Klein. In the early part of the century, car bodies were primarily open, wooden structures built by craftspeople with fairly general skills. Thus specialized investments were relatively unimportant, and General Motors bought the bodies for its cars using spot exchange.

As the automobile industry developed, it became apparent that closed metal bodies would be a superior method of manufacturing cars. This finding, however, introduced a high degree of physical asset specificity because it required investment in very specialized machines to stamp out the body parts. To constrain opportunism, General Motors and Fisher body signed a 10-year contract that set the price of the car bodies and obligated General Motors to purchase all of its closed metal car bodies from Fisher Body.

Initially this agreement worked well enough to permit the parties to make the necessary specialized investments. But as time went on, it became clear that the original agreement was not nearly complete, leaving numerous opportunities for the parties to engage in opportunism. For example, the pricing formula contained in the contract permitted Fisher Body to receive a 17.6 % profit on labor and transportation costs. This encouraged Fisher to produce with inefficient labor-intensive technologies in remotely located plants and pass on the costs of inefficiency to General Motors.

In retrospect, it appears that both General Motors and Fisher Body underestimated the difficulty of writing a contract to govern their relationship. Rather than spend time and money writing a more detailed contract, the problem was solved in 1926 when General Motors vertically integrated by purchasing Fisher Body.

- a) What different methods of procuring inputs does General Motors use?
 - b) What is meant by “spot exchange”?
 - c) What factors led GM to signing a contract with Fisher body instead of spot exchange?
 - d) What factors led GM to purchase Fisher Body?
- [6]

2. Suppose you are the manager of a firm in the textile industry. The following information is available to you for selected industries in the country:

Industry	Lerner Index	Dansby Willig performance Index*
Food	0.26	0.51
Textiles	0.21	0.38
Apparel	0.24	0.47
Paper	0.58	0.63
Printing & Publishing	0.31	0.56
Chemicals	0.67	0.67
Rubber	0.43	0.49

*Dansby-Willig performance index rank industries according to how much social welfare would improve if the output in an industry were increased by a small amount. You have just learned that the government has placed the textile industry at the top of its list of industries it plans to regulate and intends to force the industry to expand output and lower the price of textile products. How should you respond? [3]

3. Suppose the cost function for a firm that faces a horizontal demand curve is $C = 100 + Q^2$. Other firms in the industry sell output at a price of \$10, what level of output should the firm produce to maximize profits or minimize losses? What will be the level of profits or losses if the firm makes the optimal decision? [2]
4. Valair is an airline flying a particular route that has seasonal demand. The firm's total demand is given by:
 $Q = 600 - 4P$
 where Q is the number of passengers per year, in thousands, and P is the fare (in \$). In the peak season the demand is given by:
 $Q_H = 320 - 1.5P_H$
 and in the off-season the demand is given by:
 $Q_L = 280 - 2.5P_L$
 assume that fixed costs are \$6 million per year and that marginal costs are constant at \$60 per passenger. Thus the cost function is given by:
 $C = 6000 + 60Q$
 where C is total costs (in \$'000).
- Calculate the profit-maximizing price and output without price discrimination, and the size of the profit.
 - Calculate the profit-maximizing price and output with price discrimination, and the size of the profit.
 - Calculate the demand elasticities of the two segments at their profit-maximizing prices. [7]
5. What will happen to the optimum level of output if social cost is internalized in case of the following:
- Positive externality
 - Negative externality [2]



BITS Pilani

Dubai Campus

Second Semester 2011-2012 TEST -I (CB)

Course: Principles Of Economics

Course No. ECON C212

Max marks: 25

Weightage: 25%

Date: 20-03-2012

Time: 50 Minutes

Year: IV

1. A bottling plant employs three different types of labour: unskilled manual workers, technicians and supervisors. It has estimated that the marginal product of the last manual worker is 200 units per week, the marginal product of the last technician is 275 units per week and the marginal product of the last supervisor is 300 units per week. The workers earn \$300, \$400 and \$500 per week respectively.
 - a) Is the firm using the optimal combination of inputs?
 - b) If not, advise the firm on how to reallocate its resources. [5]

2.
 - a) Explain the concept of substitution effect when the price of normal good increases.
 - b) Briefly explain an application of Indifference curve analysis for the workers. [5]

3. Suppose the market for widgets can be described by the following equations:
 $Demand: P = 10 - Q$ $Supply: P = Q - 4$
where P is the price in dollars per unit and Q is the quantity in thousands of units.
Determine the equilibrium price and quantity? [2]

4. Write short notes on the following:
 - a) Producer Surplus
 - b) Short run versus long run in production
 - c) Marginal rate of technical substitution [6]

5. Demand For Gasoline

As shown in the following table, gasoline prices increased dramatically from 1973 to 1981. At first, consumers had little choice but to use about the same amount of gasoline and pay the higher prices. Some vacation trips were canceled and many commuters started going to work in buses or car pools, but the options for relief were limited. From 1973 to 1975, an average fuel consumption per vehicle declined from 736 to 685 gallons per year, a decrease of 7%. However, given more time to adjust, consumers were able to reduce the impact of higher gas prices. Smaller, fuel efficient cars became popular, and the average miles per gallon of gasoline for passenger cars increased from 13.3 in 1973 to 15.7 in 1981. People also changed jobs or moved closer to their places of work. These and other changes in driving habits reduced the average number of miles driven per car from 9800 to 8700 over the same period. The net effect of these changes was that fuel consumption per vehicle in the US declined from 736 to 555 gallons per year between 1973 and 1981, a reduction of nearly 25%.

Gasoline prices & consumer resources

Year	Average price of gasoline (\$)	Average miles per gallon	Average miles driven per vehicle per year	Average fuel consumption(gallons)
1973	0.40	13.3	9800	736
1975	0.57	13.7	9400	685
1977	0.62	14.1	9600	680
1979	0.86	14.5	9300	638
1981	1.31	15.7	8700	555

- Explain the concept of price elasticity of demand.
- What is the main determinant in the elasticity of demand in the above mentioned case?
- What is the nature of elasticity in the years 1973-75 and 1979-81? Interpret the result.
- What measures led to the change in elasticity?

[7]

BITS PILANI – DUBAI CAMPUS
Dubai International Academic City
IV Year – II Semester
QUIZ-II (CB)

Course: Principles Of Economics

Course No. ECON C212

Max marks: 7

Weightage: 7%

Date: 17-04-2012

Time: 15 Minutes

Name: _____

Id No.: _____

1. The law of _____ is the reason for marginal cost curve to be U-shaped.

2. For the production function $Q = 5K^{0.5}L^{0.6}$, the returns to scale are _____

3. Cost of negotiating a price at which the input will be purchased is
 - (i) Opportunity cost
 - (ii) Transaction cost
 - (iii) Sunk cost
 - (iv) None of the above.

4. If Lerner's index is 0.56, then the markup factor is _____

5. Given the following total revenue and total cost functions:
TR = 50Q
TC = 10,000 + 30Q
 - (i) The breakeven rate of output is _____

 - (ii) The output rate necessary to earn a profit of \$ 20,000 is _____

6. Barnacle Inc. has a legal obligation to purchase 2 tons of structural steel per week to manufacture conveyor frames. _____ method of procuring inputs is used in this case.

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BITS PILANI – DUBAI CAMPUS
Dubai International Academic City
IV Year – II Semester
QUIZ-I (CB)

Course: Principles Of Economics Course No. ECON C212
Max marks:8 Weightage: 8% Date: 21-02-2012 Time: 20 Minutes

Name: _____ Id No.: _____

1. During a year of operation, a firm collects \$175,000 in revenue & spends \$60,000 on raw materials, labor expense, utilities and rent. The owners of the firm have provided \$400,000 of their own money to the firm instead of investing the money and earning a 14% annual rate of return.
 - (i) The firm earns economic profit of \$ _____
 - (ii) The firm's accounting profit is \$ _____

2. "Minimum wage should be raised by the government" is an example of _____ method of economics.

3. The X-Corporation produces a good X that is a normal good. Its competitor, Y-Corp., makes a substitute good Y that is an inferior good. The demand for good Y will ___ if consumer incomes increase.

a) Increase b) Decrease c) remain the same

4. A firm charges \$800 for its unique word processor. If total revenue is \$72,000 in July, how many word processors were sold that month? _____

5. Which of the following statements satisfy the condition of cross price elasticity of demand for golf clubs and golf balls.
 - a) Golf clubs and golf balls are substitute goods.
 - b) Golf clubs and golf balls are complementary goods.
 - c) as the price of golf clubs increases, the consumption of golf balls decreases
 - d) as the price of golf clubs increases, the consumption of golf balls increases
 - e) Cross price elasticity of demand will be negative.
 - f) Cross price elasticity of demand will be positive.

(i) a, c,d (ii) b, c, e (iii) b,d,e (iv) b,d,f (v) None of the above

6. Consider Public policy aimed at smoking. Studies indicate that the price elasticity of demand for cigarettes is about 0.4. If a pack of cigarettes currently costs \$2.00 and the government wants to reduce smoking by 20 percent, the new price should be \$ _____

7. The price elasticity of demand for Ford SUVs will _____ as a result of ad campaigns which makes Americans believe that SUVs are much safer than ordinary passenger cars.

a) Increase b) Decrease c) remain the same