Indian Institute of Technology Bombay
Department of Humanities & Social Sciences
HS 101: Economics

Academic Year: 2014-15	**[Autumn Semester]**	**Date: 9/9/2014**
Max. Marks: 30	**Mid-Term Examination**	**Time: 17.30-19.30 Hrs.**

I. Answer ANY THREE of the following questions. [3×4=12 Marks]

1. **a)** Kareena consumes two goods, x and y, where x and y are perfect substitutes. Her utility function is given as U(.) = x + y. Draw the indifference map for Kareena.

b) Kareena has Rs. 100 to spend on these two goods. Prices of good x and y are Rs. 2 and Re. 1, respectively. If Kareena's objective is to maximize utility, find the quantity of x and y consumed by her at equilibrium. (Explain using graph).

2. A farmer produces potatoes and his production function is $Q(L) = L^{0.5}$. The wage rate in the market is Rs. 5. Since the farmer operates in a perfectly competitive market, he takes the market price for potatoes, Rs. 40 as given. In order to maximize profit, the farmer must decide the optimal levels of labour (L) and output (Q). Write the farmer's optimization problem and find the optimal values of L and Q.

3. Consider a market for chocolate ice-creams. The demand and supply curves for chocolate ice-cream are as follows: ***Demand***: $Q_D = 10 - P$; ***Supply***: $Q_S = -2 + 2P$.

a) Find the equilibrium quantity and price in this market. **b)** Now suppose that the government imposes tax of Rs. 2 per ice-cream on consumers. What will be the impact of this policy on the equilibrium? Show your answer graphically.

4. Use a graph to demonstrate the circumstances that would prevail in a competitive market when firms are earning economic profits. Can this scenario be maintained in the long run? Explain using graphs.

5. Compare the demand curve of the monopolist with that of the perfectly competitive firm. Give a detailed explanation for the difference between the two demand curves.

6. What is consumer surplus and how is it measured? Other things equal, what happens to consumer surplus if the price of a good falls? Why? Illustrate using a linear demand curve.

II. Identify which of the following statements is True / False. [16×0.5=8 Marks]

1. Diseconomies of scale often arise because higher production levels allow specialization among workers. ***False***
2. As a firm moves along its long-run average cost curve, it is adjusting the size of its factory to the quantity of production. ***True***
3. A firm will shut down in the short run if revenue is not sufficient to cover all of its fixed costs of production. ***False***
4. In the long run, a competitive market with 1,000 identical firms will experience an equilibrium price equal to the minimum of each firm's average total cost. ***True***
5. The supply curve of a firm in a competitive market is the average variable cost curve, above the minimum of marginal cost. ***False***
6. Unless markets are perfectly competitive, they may fail to maximize the total benefits to buyers and sellers. ***True***
7. Normal goods have negative income elasticities of demand, while inferior goods have positive income elasticities of demand. ***False***

8. Binding price ceilings benefit consumers because they allow all consumers to buy all the goods they demand at a lower price. ***False***

9. The marginal rate of substitution along an indifference curve does not change for perfect substitutes. ***True***

10. For a monopoly, marginal revenue is often greater than the price they charge for their good.

    False

11. The amount of power that a monopoly has depends on whether there are close substitutes for its product. ***True***

12. Inflation increases the value of money. ***False***

13. "Society would be better if the welfare system were abolished" is a normative statement, not a positive statement. ***True***

14. Economic growth causes a production possibilities frontier to shift outward. ***True***

15. If a company making frozen orange juice expects the price of their product to be higher next month, it will supply more to the market this month. ***False***

16. In demand-supply model, a shortage will occur at any price below equilibrium price and a surplus will occur at any price above equilibrium price. ***True***

III. Multiple Choice Questions. Mark the Best Choice. [20×0.5=10 Marks]

1. If the market elasticity of demand for potatoes is -0.3 in a perfectly competitive market, then the individual farmer's elasticity of demand
   a. will also be -0.3.
   b. depends on how large a crop the farmer produces.
   c. will range between -0.3 and -1.0.
   d. will be infinite.

2. If marginal cost exceeds marginal revenue, the firm
   a. is most likely to be at a profit-maximizing level of output.
   b. should increase the level of production to maximize its profit.
   c. must be experiencing losses.
   d. may still be earning a positive accounting profit.

3. As a general rule, profit-maximizing producers in a competitive market produce output at a point where
   a. marginal cost is increasing.
   b. marginal cost is decreasing.
   c. marginal revenue is increasing.
   d. price is less than marginal revenue.

4. Economic profit
   a. will never exceed accounting profit.
   b. is most often equal to accounting profit.
   c. is always at least as large as accounting profit.
   d. is a less complete measure of profitability than accounting profit.

5. The marginal product of labor (MP_L) curve reaches its maximum point:
   a. after the average product of labor (AP_L) curve.
   b. at the same quantity of labor as the average product of labor (AP_L) curve.
   c. before the average product of labor (AP_L) curve.
   d. None of the above; the MP_L never reaches a maximum.

6. Producer surplus is
   a. measured using the demand curve for a good.
   b. always a negative number for sellers in a competitive market.

c. the amount a seller is paid minus the cost of production.
d. the opportunity cost of production minus the cost of producing goods that go unsold.

7. If a consumer places a value of Rs.15 on a particular good and if the price of the good is Rs.17, then
a. the consumer has consumer surplus of Rs.2 if he or she buys the good.
b. the consumer does not purchase the good.
c. the market is not a competitive market.
d. there is going to be downward pressure on the price of the good.

8. When the indifference curve is tangent to the budget constraint,
a. the consumer cannot be made better off without increasing her income.
b. the consumer is likely to be at a sub-optimal level of consumption.
c. income is at its optimum for a consumer.
d. indifference curves are likely to intersect.

9. When the price of a good increases, all else equal, the higher price
a. reduces the consumer's set of buying opportunities.
b. leads to a parallel shift of the linear budget constraint.
c. will necessarily lead to an increase in the consumption of goods whose price did not change.
d. generally discourages the consumption of inferior goods.

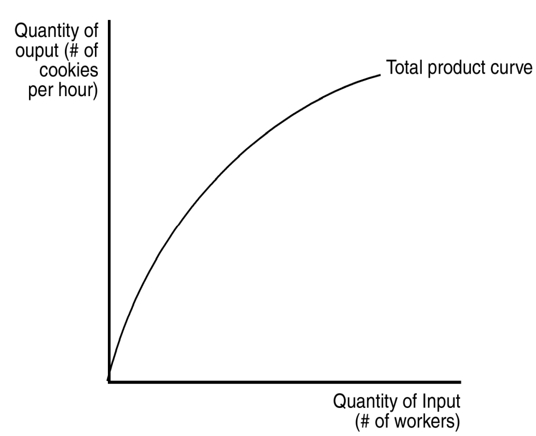
10. If the demand for a good or service decreases, producer surplus
a. increases.
b. decreases.
c. remains the same.
d. may increase, decrease or remain the same.

11. A tax on a good
a. raises the price that buyers effectively pay and raises the price that sellers effectively receive.
b. raises the price that buyers effectively pay and lowers the price that sellers effectively receive.
c. lowers the price that buyers effectively pay and raises the price that sellers effectively receive.
d. lowers the price that buyers effectively pay and lowers the price that sellers effectively receive.

Answer Question No. 12 and 13 based on the following figure showing total production of cookies.

12. As the number of workers increases
a. total output increases, but at a decreasing rate.
b. marginal product increases, but at a decreasing rate.
c. marginal product increases at an increasing rate.
d. total output decreases, but at a decreasing rate.

13. With regard to cookie production, the figure implies
a. diminishing marginal cost of cookie production.
b. decreasing cost of cookie production.
c. diminishing marginal product of workers.
d. increasing marginal product of workers.



14. When marginal cost exceeds average total cost
   a. average fixed cost must be rising.
   b. average total cost must be rising.
   c. average total cost must be falling.
   d. marginal cost must be falling.

15. For a Giffen good, when the price of the good increases, the income and substitution effects
   a. go in the same direction, and the income effect is larger.
   b. go in the same direction, and the substitution effect is larger.
   c. go in opposite directions, and the income effect is larger.
   d. go in opposite directions, and the substitution effect is larger.

16. Suppose a competitive firm produces and sells 8 units of output and has marginal revenue of Rs. 8.00. What would be the firm's total revenue if it instead produced and sold 4 units of output?
   a. Rs. 4.00
   b. Rs. 8.00
   c. Rs. 32.00
   d. Rs. 64.00

17. Which of the following statements best reflects the production decision of a profit-maximizing firm in a competitive market when price falls below the minimum of average variable cost?
   a. The firm will continue to produce to attempt to pay fixed costs.
   b. The firm will immediately stop production to minimize its losses.
   c. The firm will stop production as soon as it is able to pay its sunk costs.
   d. The firm will continue to produce in the short run but will likely exit the market in the long run.

18. Efficiency in a market is achieved when
   a. the social planner intervenes and sets the quantity of output after evaluating buyers' willingness to pay and sellers' costs.
   b. the sum of producer surplus and consumer surplus is maximized.
   c. all firms are producing the good at the same low cost per unit.
   d. no buyer is willing to pay more than the equilibrium price for any unit of the good.

19. In a certain economy, peanuts and books are produced, and the economy currently operates on its production possibilities frontier. Which of the following events would allow the economy to produce more peanuts and more books, relative to the quantities of those goods that are being produced now?
   a. Unemployed labor is put to work producing peanuts and books.
   b. The economy puts its idle capital to work producing peanuts and books.
   c. The economy experiences economic growth.
   d. All of the above are correct.

20. Consumer surplus is equal to the
   a. Value to buyers – Amount paid by buyers.
   b. Amount paid by buyers − Costs of sellers.
   c. Value to buyers – Costs of sellers.
   d. Value to buyers – Willingness to pay of buyers.