ATLAS COMPREHENSIVE HIGH SCHOOL

ECONOMICS 2012 E.C.

CHAPTER – 4

SUMMERY NOTE

- Production is a process of using the service of input to make goods and services available
- Inputs are anything used in production of an item. Inputs can be divided into two; foxed input and variable inputs. Fixed inputs are those inputs whose quantity cannot be changed in a given period of time. They remain fixed irrespective of the output level of the firm. On the other hand, variable inputs are those inputs whose quantities vary directly with output.
- We can have two production periods: short run and long run. Short run refers to a period of time in which the quantity of at least one input remains fixed. By long run we mean a period of time in which all input become variable. Both of them do not refer to a specific period of time; rather they refer to the nature of economic adjustment.
- Production function shows technological relationship between various combinations of input and maximum obtainable output. When then quantity of at least one input remains fixes, the production function is called short run production function. When all input is variable, it is called long run production function.
- Total product is the total output that a firm produce in a given period of time. Average product, mean total product per unit of a variable input. Marginal product, on the other hand, shows the change in total output of a firm due to the use of one more unit of a variable input.
- Whenever MP>AP →AP increases, whenever MP<AP→AP decreases, and when MP=AP, AP reaches its maximum.
- When increasing amount of a variable input is combined with a certain level of fixed inputs, eventually the MP of the variable input declines. This is known as the law of diminishing marginal returns. The law starts to operate after the MP reaches its maximum.
- There are three stages of production and rational producer produce in stage II.
- An isoquant or equal produce curve represents the various combinations of variable inputs that give the firm the same level of output. Isoquants are negatively sloped, convex to the origin and they cross each other.
- The rate by which one input is substituted for another input, keeping the output constant, is called marginal rate of technical substitution.
- Technological advancement shifts the total product curve upward implying that we can produce more of a product from a given level of inputs.
- Returns to scale are a property that applies only in the long run. We have three types of returns to scale: constant returns to scale, increasing returns to scale and decreasing returns to scale
- Cost is the monetary value of inputs used to produce an item. We can identify two types of costs: social cost and private cost. The former is cost of producing an item to the society while the latter refers to the cost of producing the item to the individual firm.

- Private cost can be measured as economic cost or accounting cost. Economic cost is the cost of all inputs used to produce the item. It is the sum of explicit cost and implicit cost. But accounting cost take the cost take the cost of purchased inputs only, i.e., it is the explicit cost of production.
- The short run cost of a firm is the sum of fixed costs and variable costs. Fixed costs remain unchanged irrespective of the output level of the firm. But variable costs vary directly with the output level. The pattern of the TC is the same as the pattern of the TVC.
- The AFC of production continuously declines as output increases. But AVC, AC, and MC curves have a tendency to first decline reach their respective minimum and then rise as the output level rise.
- The MC curve cuts the AVC and the AC curves at their respective minimums.
- There is a relationship between production and cost. The MP and AP have inverse [opposite] relationships with MC and AVC of production.
- The law of diminishing marginal returns starts to operate after the MP reaches its maximum. Hence, when the law starts to operate, we see that the MC of production starts to rise.
- Least cost rule shows the condition for minimizing cost of production of a given level of output. This condition is when $MP_L/P_L = MP_K/P_K$.
- The least cost rule rests on the notion that a production unit should produce at the lowest possible cost to get the highest possible revenue.

CHAPTER-4 SELF-TEST WORK SHEET FOR SOCIAL SCIENCE GRADE 11 STUDENTS

Part I. Multiple choice; choose the best answer

___1. Short run production period is

a. a period of time in which all inputs are variable

b. usually less than one year

c. is a period of time in which the quantity of at least one input is fixed

d. b and c

___2. The process by which economic resources are combined to obtain goods and services is knowns as

a. Consumption b. Production c. Technology d. Economics

___3. Production function

a. is a technological relationship between input and output.

b. shows the maximum output that can be produced from a given level of input

c. can also be represented in the form of an isoquant

d. All

___4. The addition to total product that comes due to the use of an additional unit of a variable input

a. is AP of the variable input
c. can be negative

b. is MP of the variable input
d. b and c

___5. Considering a short run production function, when MP rises

a. AP also rises
c. AP declines

b. TP is also rises
d. a and b

___6. Given a short run production function where labor is the only variable input, the AP of two units of labor is 30kg of wheat and the AP of three units of labor is 40kg of wheat. Which of the following is/are true?

a. the MP of the third labor is 60kg

b. the MP of the third labor is 10kg

c. when the unit of labor is three, TP is 120

d. a and c

___7. Which of the following is/are true about the first stage of production?

a. there is underemployment of the variable input

b. the fixed input is underutilized

c. MP is above the AP of the variable input

d. all

___8. If a firm double all input and the total output increase three fold, this is a case of

a. Constant returns to scale
c. Decreasing returns to scale

b. Increasing returns to scale
d. None

___9. Increasing returns to scale can occur in a certain production center due to

a. greater degree of specialization

b. expansion of the scale of production

c. by buying more of machinery while other inputs remain unchanged

d. a and b

___10. Which of the following is/are wrong?

a. the law of diminishing marginal returns starts to operate when MP of labor is negative

b. in stage III, total product can be increased by reducing the amount of the variable input

c. the MP of a variable input is equal to the AP of the variable input when the MP is maximum

d. a and c

___11. Which of the following is/are example of fixed costs?

a. cost of labor
c. interest on borrowed funds

b. cost of fuel
d. a and b

12. When the law of diminishing marginal returns begins to operate,

A. MC curve continues to decline
C. TVC curve starts to rise
B. MC curve starts to rise
D. B and C

13. Which of the following cost decline continuously as a firm increases its output?

A. Marginal cost of production
C. Average fixed cost
B. Average cost of production
D. A and C

14. All of the following cost curves are ''U'' shape except

A. AVC curve
C. MC curve
B. AFC curve
D. None

15. Marginal cost and Average cost are the same at the output level at which

A. AVC is minimum
C. AC is minimum
B. MC is minimum
D. They will never be equal

16 When a firm is producing in stage I,

A. MP is greater than the AP
C. MC is above AVC curve
B. MC is below AVC of production
D. A and B

17. The difference between explicit costs and implicit costs is that

A. Implicit cost are opportunity cost and explicit costs are not
B. Explicit costs are associated with variable resources and implicit costs with Fixed resources
C. Explicit cost are short-run costs and implicit costs are long-run costs
D. Explicit costs are associated with resources hired by the firm and implicit costs With resources owned by firm or provided by the firm's owners.

18. In the short run, total cost is expected eventually to

A. Increases at a decreasing rate.
C. Increases at a constant rate.
B. Increases at an increases rate
D. ALL

19. When the firm experiences increases marginal returns.

A. The marginal costs are increasing
C. Marginal cost are constant
B. Marginal costs are decreasing
D. Total cost are decreasing

20. The minimum point of the average variable cost

A. At the same rate of output as the minimum of the average variable cost Curve.

B. To the left of minimum of average variable cost curve
C. To right of the minimum of the average variable cost curve
D. Below the minimum point of average variable cost curve

PART II SHORT ANSWER QUESTION

1. Define the following terms
   A. Isoquant
   B. The marginal rate of technical substitution [MRTS]
   C. The law of diminishing marginal returns.
2. Write the properties of isoquants.
3. What does economic region of production indicate?

***PART III* A. Fill in the blank space and show by using graph**

Q	TFC	TVC	TC	AFC	AVC	AC	MC
0	60	-	60				
1	60	-	90	-	-	-	-
2	60	-	100	-	-	-	-
3	60	-	105	-	-	-	-
4	60	-	115	-	-	-	-
5	60	-	135	-	-	-	-
6	60	-	180	-	-	-	-

B. Suppose the total cost function of a firm is given by $TC=150 + 1/4Q - 3/2 + 0.1/9Q^3$

What would be **TFC,TVC, AFC, AVC** and **MC**?

PART IV. True – False Question: write 'TRUE' for correct statements and 'FALSE' for wrong statement

1. Implicit cost are opportunity costs, but explicit cost are not.
2. The different between accounting profit and economic profit is in the treatment Of implicit costs.
3. At a zero rate of output, total cost equal fixed cost in the short run.
4. Fixed cost increase as a marginal cost increases.
5. Marginal cost can be derived from the total variable cost curve but not From the total cost curve.
6. Marginal cost decreases when there are increasing marginal returns and Increases when there are diminishing marginal returns.
7. The shapes of the short- run variable cost and total cost curves are determined by The increasing and decreasing returns to the variable inputs.