Chapter 12
Production and Cost

12.1 Economic Cost and Profit

1) Which of the following is a firm's fundamental goal?
   A) producing a quality product
   B) maximizing workforce job satisfaction
   C) improving society
   D) maximizing profits
   E) increasing its sales

   Answer: D
   Topic: Firm's goal
   Skill: Level 1: Definition
   Objective: Checkpoint 12.1
   Author: TS

2) The fundamental goal of a firm is to
   A) produce a quality product.
   B) obtain the greatest market share.
   C) maximize profit.
   D) provide their workforce with job satisfaction.
   E) drive its competitors out of business.

   Answer: C
   Topic: Firm's goal
   Skill: Level 1: Definition
   Objective: Checkpoint 12.1
   Author: SB
3) A firm's fundamental goal is to
   A) maximize output.
   B) minimize costs.
   C) maximize total revenue.
   D) maximize profit.
   E) drive its competitors out of business.

Answer: D

Topic: Firm's goal
Skill: Level 1: Definition
Objective: Checkpoint 12.1
Author: CD

4) If a firm does not maximize profit, it is
   A) either eliminated or bought by firms that do maximize profit.
   B) helping society use its resources efficiently.
   C) charging the efficient price.
   D) producing the efficient quantity of output.
   E) likely to have lower costs and production than are socially efficient.

Answer: A

Topic: Firm's goal
Skill: Level 2: Using definitions
Objective: Checkpoint 12.1
Author: SB

5) John fishes for a living. Last year, he sold $100,000 of fish. Bait, nets and other fishing supplies cost John $10,000 and he paid $40,000 in salaries to his helpers. Depreciation on his boat and other equipment, as calculated using IRS rules, was $15,000. What was John's profit as would be calculated by an accountant?
   A) $165,000
   B) $100,000
   C) $65,000
   D) $35,000
   E) None of the above answers is correct.

Answer: D

Topic: Accounting profit
Skill: Level 2: Using definitions
Objective: Checkpoint 12.1
Author: SB
6) From a firm’s viewpoint, opportunity cost is the
   A) best alternative use customers can find for the firm’s output.
   B) cost the firm must pay for the factors of production it employs to attract them from
       their best alternative use.
   C) accounting cost of resources.
   D) price a firm can charge for its output.
   E) cost of acquiring the opportunity to sell to its customers.

   Answer: B
   Topic: Opportunity cost
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.1
   Author: SB

7) Which of the following is an explicit cost of production?
   A) wages paid to workers
   B) the electric bill
   C) purchases of raw material
   D) Only answers A and B are explicit costs because the purchases of raw material is only
       an opportunity cost.
   E) Answers A, B, and C are all correct.

   Answer: E
   Topic: Explicit cost
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.1
   Author: TS

8) When Ford hires Ernst and Young Consulting to help Ford redesign its marketing, Ford’s
   payment to Ernst and Young is classified as
   A) an explicit cost.
   B) depreciation.
   C) an implicit cost.
   D) normal profit.
   E) economic profit.

   Answer: A
   Topic: Explicit cost
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.1
   Author: TS
9) A cost paid in money is
   A) not an opportunity cost.
   B) an implicit cost and an opportunity cost.
   C) an explicit cost and an opportunity cost.
   D) not an accounting cost.
   E) an explicit cost but not an opportunity cost.
   
   Answer: C
   Topic: Explicit cost
   Skill: Level 1: Definition
   Objective: Checkpoint 12.1
   Author: SB

10) If a business owner decided to expand her business but rather than borrowing money from a bank used her own funds, then
   A) she would be unable to earn a normal profit.
   B) there would be no cost associated with the expansion.
   C) she would forego the opportunity to earn interest on the money.
   D) the money is considered to be an explicit cost.
   E) the money is part of her normal profit.
   
   Answer: C
   Topic: Implicit cost
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.1
   Author: SB

11) Which of the following is an implicit cost?
   i. wages paid to workers
   ii. the normal profit
   iii. the electric bill
   A) i only.
   B) ii only.
   C) i and ii.
   D) ii and iii.
   E) i, ii, and iii.
   
   Answer: B
   Topic: Implicit cost
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.1
   Author: TS
12) Which of the following are correct statements about implicit and explicit costs?
   i) Normal profit is an implicit cost.
   ii) Economic depreciation is an explicit cost.
   iii) Wages are an explicit cost.

A) ii and iii  
B) i and iii  
C) iii only  
D) i, ii, and iii  
E) i only.

Answer: B

Topic: Implicit cost
Skill: Level 2: Using definitions
Objective: Checkpoint 12.1
Author: CD

13) Economic depreciation is the
   A) fall in value of the firm’s capital, calculating using IRS rules.
   B) opportunity cost of owning and using the firm’s capital, measured as the change in market value.
   C) decrease in the value of finished goods and services that are held in inventories prior to being sold.
   D) term given to a fall in a company’s stock price.
   E) name given to how accountants calculate the depreciation of the company’s capital.

Answer: B

Topic: Economic depreciation
Skill: Level 1: Definition
Objective: Checkpoint 12.1
Author: SB

14) A firm pays $50,000 for a machine that is used in production for one year, after which it is sold for $40,000 to another firm. The $10,000 difference is
   A) an explicit cost of production.
   B) economic depreciation, an implicit cost of production.
   C) normal profit.
   D) not counted as an economic cost of production.
   E) not an opportunity cost because it is not actually paid.

Answer: B

Topic: Economic depreciation
Skill: Level 2: Using definitions
Objective: Checkpoint 12.1
Author: TS
15) The return to entrepreneurship, which is what the firm's owner could earn running another business, is known as
   A) economic profit.
   B) accounting profit.
   C) excessive profit.
   D) normal profit.
   E) entrepreneur's profit.

   Answer: D  
   Topic: Normal profit  
   Skill: Level 1: Definition  
   Objective: Checkpoint 12.1  
   Author: TS

16) A normal profit is
   A) part of a firm’s opportunity cost.
   B) equal to total revenue minus total opportunity cost.
   C) the same as economic profit.
   D) the same as accounting profit.
   E) almost always zero if the company is run efficiently.

   Answer: A  
   Topic: Normal profit  
   Skill: Level 1: Definition  
   Objective: Checkpoint 12.1  
   Author: MR

17) A firm's total revenue minus its total opportunity cost is called its
   A) accounting profit.
   B) normal profit.
   C) economic profit.
   D) abnormal profit.
   E) entrepreneur's profit.

   Answer: C  
   Topic: Economic profit  
   Skill: Level 1: Definition  
   Objective: Checkpoint 12.1  
   Author: TS
18) Economic profit equals total revenue minus total
   A) explicit costs.
   B) opportunity costs.
   C) implicit costs.
   D) accounting costs.
   E) entrepreneur’s costs.
   Answer: B
   Topic: Economic profit
   Skill: Level 1: Definition
   Objective: Checkpoint 12.1
   Author: SB

19) Suppose that a firm earned $500,000 in total revenue. At the same time, it incurred labor costs of $200,000; economic depreciation of $50,000; normal profit of $75,000; interest paid to the bank of $25,000; and used other factors of production that cost $100,000. The economic profit earned by the firm equals
   A) $275,000.
   B) $175,000.
   C) $50,000.
   D) $200,000.
   E) $500,000.
   Answer: C
   Topic: Economic profit
   Skill: Level 3: Using models
   Objective: Checkpoint 12.1
   Author: CD

20) If the accounting profit for a firm is $100,000 and economic profit is $80,000, what is the firm’s explicit cost?
   A) $20,000
   B) $80,000
   C) $100,000
   D) $180,000
   E) There is not enough information given to calculate the explicit cost.
   Answer: E
   Topic: Economic cost and profit
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.1
   Author: TS
21) The paramount goal of a firm is to
   A) maximize its profit.
   B) maximize its sales.
   C) maximize its total revenue.
   D) minimize its costs.
   E) force its competitors into bankruptcy.

   Answer: A
   Topic: Firm’s goal
   Skill: Level 1: Definition
   Objective: Checkpoint 12.1
   Author: STUDY GUIDE

22) For a business, opportunity cost measures
   A) only the cost of labor and materials.
   B) only the implicit costs of the business.
   C) the cost of all the factors of production the firm employs.
   D) only the explicit costs the firm must pay.
   E) all of the firm’s costs including its normal profit and its economic profit.

   Answer: C
   Topic: Opportunity cost
   Skill: Level 1: Definition
   Objective: Checkpoint 12.1
   Author: STUDY GUIDE

23) Costs paid in money to hire a resource is
   A) normal profit.
   B) an implicit cost.
   C) an explicit cost.
   D) an alternative-use cost.
   E) economic profit.

   Answer: C
   Topic: Explicit cost
   Skill: Level 1: Definition
   Objective: Checkpoint 12.1
   Author: STUDY GUIDE
24) Which of the following is an example of an implicit cost?
   A) wages paid to employees
   B) interest paid to a bank on a building loan
   C) the cost of using capital an owner donates to the business
   D) dollars paid to a supplier for materials used in production
   E) liability insurance payments made only once a year
   Answer: C
   Topic: Implicit cost
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.1
   Author: STUDY GUIDE

25) The opportunity cost of a firm using its own capital is called
   A) economic depreciation.
   B) standard ownership depreciation.
   C) economic loss.
   D) normal loss.
   E) capital loss.
   Answer: A
   Topic: Normal profit
   Skill: Level 1: Definition
   Objective: Checkpoint 12.1
   Author: STUDY GUIDE

26) The difference between a firm’s total revenue and its total cost is its ____ profit.
   A) explicit
   B) normal
   C) economic
   D) accounting
   E) excess
   Answer: C
   Topic: Economic profit
   Skill: Level 1: Definition
   Objective: Checkpoint 12.1
   Author: STUDY GUIDE
12.2 Short-Run Production

1) The short run is a time period that is
   A) equal to a day.
   B) too short to change the amount of labor hired.
   C) too short to change the size of the firm’s plant.
   D) long enough to change the size of the firm’s plant.
   E) too short to change the amount of any resource the firm employs.

Answer: C

Topic: Short run
Skill: Level 1: Definition
Objective: Checkpoint 12.2
Author: TS

2) To produce more output in the short run, a firm must employ more of
   A) all its resources.
   B) its fixed resources.
   C) its variable resources.
   D) the least costly resources regardless of whether they are fixed or variable.
   E) Firms cannot produce more output in the short run.

Answer: C

Topic: Short run
Skill: Level 2: Using definitions
Objective: Checkpoint 12.2
Author: SB

3) A firm that wants to increase output tomorrow has ____ a firm that intends to change its output six months from now.
   A) exactly the same options as
   B) more options than
   C) only fewer options than
   D) the same or fewer options than
   E) None of the above answers are correct because the options increasing output in six months versus changing it one day cannot be compared.

Answer: C

Topic: Short run
Skill: Level 2: Using definitions
Objective: Checkpoint 12.2
Author: SB
4) Which of the following is a list of fixed inputs for a hospital?
   A) bandages, casts, and other materials
   B) antibiotics, pain medication, and other prescription drugs
   C) the emergency room, intensive care unit, and other facilities
   D) the nurses, receptionists, and other employees
   E) the lobby, the doctors, and the electricity it uses
Answer: C

5) The long run is a time period that is
   A) five years or longer.
   B) long enough to change the amount of labor employed.
   C) long enough to change the size of the firm's plant and all other inputs.
   D) long enough to change the amount of labor employed but not to change the size of the plant.
   E) None of the above answers describe the long run.
Answer: C

6) In the long run,
   A) some resources are fixed.
   B) all resources are variable.
   C) output cannot be varied.
   D) all resources are fixed.
   E) Both answers B and C are correct.
Answer: B

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Chapter 12 Production and Cost
7) The long run is defined as
   A) any time after six months.
   B) any time after one year.
   C) the period of time when all resources are fixed.
   D) the period of time when most (more than 50 percent) resources are variable.
   E) the period of time when all resources are variable.

   Answer: E
   Topic: Long run
   Skill: Level 1: Definition
   Objective: Checkpoint 12.2
   Author: SB

8) A sunk cost is
   A) the past cost of buying a plant that has no resale value.
   B) a reversible cost.
   C) important to a firm's decision making.
   D) always an explicit cost.
   E) a current opportunity cost of running a business.

   Answer: A
   Topic: Sunk cost
   Skill: Level 1: Definition
   Objective: Checkpoint 12.2
   Author: SB

9) What is an example of a sunk cost?
   A) expenditures associated with well drilling
   B) costs of hiring labor
   C) the difference between a past expenditure for a plant and its current resale value
   D) costs that firms must take into account when making production decisions
   E) None of the above answers is correct.

   Answer: C
   Topic: Sunk cost
   Skill: Level 1: Definition
   Objective: Checkpoint 12.2
   Author: TS
10) The total quantity of a good produced in a given period is called the
A) total product.
B) average product.
C) marginal product.
D) total cost.
E) marginal cost.
Answer: A
Topic: Total product
Skill: Level 1: Definition
Objective: Checkpoint 12.2
Author: SB

11) Which of the following statements correctly describes a total product curve?
A) Points above the total produce curve are efficient.
B) The curve shows that output always increases as labor employed increases.
C) The curve separates attainable outputs from unattainable outputs.
D) The curve shows minimum levels of output.
E) The curve first falls, reaches a minimum, and then rises.
Answer: C
Topic: Total product curve
Skill: Level 2: Using definitions
Objective: Checkpoint 12.2
Author: CD

12) Marginal product is
A) total product divided by labor.
B) the change in total product divided by the increase in labor.
C) a measure of labor.
D) output that does not meet quality specifications.
E) total product minus the quantity of labor.
Answer: B
Topic: Marginal product
Skill: Level 1: Definition
Objective: Checkpoint 12.2
Author: SB
13) When the slope of the total product curve is steep, the marginal product is
   A) zero.
   B) negative.
   C) high.
   D) low.
   E) not defined.
   Answer: C
   Topic: Marginal product
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.2
   Author: SB

14) If 9 workers can produce 1,550 units of output and 10 workers can produce 1,700 units of
    output, then the marginal product of the 10th worker is
    A) 1,700 units.
    B) 1,500 units.
    C) 150 units.
    D) 170 units.
    E) It is impossible to calculate with the information given.
    Answer: C
    Topic: Marginal product
    Skill: Level 3: Using models
    Objective: Checkpoint 12.2
    Author: TS

15) Increasing marginal returns to labor
    A) occur when a particularly efficient worker is employed.
    B) describe the portion of a total product curve where the marginal product is negative.
    C) mean that two workers produce less than twice the output of one worker.
    D) are the result of specialization and division of labor in the production process.
    E) occur only when there are increasing marginal returns to capital.
    Answer: D
    Topic: Increasing marginal returns
    Skill: Level 2: Using definitions
    Objective: Checkpoint 12.2
    Author: SB
16) What economic term is used to describe a situation in which the marginal product is decreasing as more workers are hired?
   A) increasing marginal returns  
   B) decreasing marginal returns  
   C) total decreasing product  
   D) average diminishing product  
   E) decreasing marginal cost  
   Answer: B  
   Topic: Decreasing marginal returns  
   Skill: Level 1: Definition  
   Objective: Checkpoint 12.2  
   Author: SB

17) Decreasing marginal returns occur in the short run as more labor is hired to work in a fixed sized plant because
   A) less efficient and less productive workers are hired.  
   B) adding more workers exhausts the possible gains from specialization.  
   C) the entrepreneur does not know how to manage more workers.  
   D) each worker will produce more than the worker previously hired.  
   E) the plant becomes less specialized.  
   Answer: B  
   Topic: Decreasing marginal returns  
   Skill: Level 2: Using definitions  
   Objective: Checkpoint 12.2  
   Author: TS

18) If 9 workers can produce 1,550 units of output and 10 workers can produce 1,700 units of output, then the average product of 10 workers is
   A) 1,700 units.  
   B) 1,500 units.  
   C) 170 units.  
   D) 150 units.  
   E) It is impossible to calculate with the information given.  
   Answer: C  
   Topic: Average product  
   Skill: Level 3: Using models  
   Objective: Checkpoint 12.2  
   Author: TS
19) When the average product is at its maximum,
   A) the marginal product is increasing as output increases.
   B) the marginal product is negative.
   C) it is equal to the marginal product.
   D) total product is also at its maximum.
   E) total product is at its minimum.

   Answer: C
   
   Topic: Marginal and average product
   Skill: Level 3: Using models
   Objective: Checkpoint 12.2
   Author: SB

20) Under which of the following sets of circumstances can you be sure that the average product increases as more labor is hired?
   A) Total product increases as more labor is hired.
   B) The marginal product is equal to the average product.
   C) The marginal product is positive.
   D) The marginal product is greater than the average product.
   E) The marginal product is less than the average product.

   Answer: D
   
   Topic: Marginal and average product
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.2
   Author: TS

21) The average product is the greatest in the short run when the
   A) total product is maximized.
   B) marginal product is equal to zero.
   C) marginal product is maximized.
   D) marginal product is equal to the average product.
   E) marginal product is greater than the average product.

   Answer: D
   
   Topic: Marginal and average product
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.2
   Author: TS
The table above shows the total product schedule for Rick’s Films, a film developing hut. The total product schedule shows

A) increasing marginal returns when the 6th worker is hired.
B) decreasing marginal returns when the 1st worker is hired.
C) first increasing and then decreasing marginal returns.
D) output first increases then increases.
E) only decreasing marginal returns.

Answer: C

Topic: Total product schedule
Skill: Level 3: Using models
Objective: Checkpoint 12.2
Author: CD

23) The table above shows the total product schedule for Rick’s Films, a film developing hut. Increasing marginal returns

A) end when the fourth worker is hired.
B) occur at all levels of employment.
C) occur as long as output increases.
D) end when the second worker is hired.
E) never occur.

Answer: A

Topic: Increasing marginal returns
Skill: Level 3: Using models
Objective: Checkpoint 12.2
Author: CD
24) The table above shows the total product schedule for Rick’s Films, a film developing hut. Decreasing marginal returns start to occur after the ____ worker is hired.
   A) first  
   B) fourth  
   C) fifth  
   D) sixth  
   E) third

Answer: C  
**Topic:** Decreasing marginal returns  
**Skill:** Level 3: Using models  
**Objective:** Checkpoint 12.2  
**Author:** CD

25) The table above shows the total product schedule for Rick’s Films, a film developing hut. When the 4th worker is hired, the ____ product of labor equals ____ roles of film developed.
   A) average; 60  
   B) average; 3.75  
   C) marginal; 3.75  
   D) marginal; 0  
   E) marginal; 15

Answer: B  
**Topic:** Average product  
**Skill:** Level 3: Using models  
**Objective:** Checkpoint 12.2  
**Author:** CD

26) The table above shows the total product schedule for Rick’s Films, a film developing hut. The average product of labor ____ when the 7th worker is hired.
   A) reaches its maximum  
   B) equals 1 role of film developed  
   C) equals 28 roles of film developed  
   D) equals 4 roles of film developed  
   E) equals 2 roles of film developed

Answer: D  
**Topic:** Average product  
**Skill:** Level 3: Using models  
**Objective:** Checkpoint 12.2  
**Author:** CD
27) The table above shows the total product schedule for Rick's Films, a film developing hut. When the ____ worker is hired, the average product of labor ____ the marginal product of labor.
   A) 4th; exceeds
   B) 5th; exceeds
   C) 6th; exceeds
   D) 7th; is less than
   E) 7th; equals

   Answer: C

   Topic: Marginal and average product
   Skill: Level 3: Using models
   Objective: Checkpoint 12.2
   Author: CD

28) The table above shows the total product schedule for Rick's Films, a film developing hut. When does the average product of labor equal the marginal product of labor?
   A) between the 4th and 5th workers
   B) at the 5th worker
   C) between the 5th and 6th workers
   D) between the 6th and 7th workers
   E) between 0 workers and the 3rd worker.

   Answer: D

   Topic: Marginal and average product
   Skill: Level 3: Using models
   Objective: Checkpoint 12.2
   Author: CD

29) The short run is a time period during which
   A) some of the firm's resources are fixed.
   B) all of the firm's resources are fixed.
   C) all of the firm's resources are variable.
   D) the fixed cost equals zero.
   E) the firm cannot increase its output.

   Answer: A

   Topic: Short run
   Skill: Level 1: Definition
   Objective: Checkpoint 12.2
   Author: STUDY GUIDE
30) In the short run, firms increase output by
   A) only increasing the size of their plant.
   B) only decreasing the size of their plant.
   C) only increasing the amount of labor used.
   D) only decreasing the amount of labor used.
   E) either increasing the amount of labor used or increasing the size of their plant.

   Answer: C
   Topic: Short run
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.2
   Author: STUDY GUIDE

31) Which of the following is correct?
   A) The short run for a firm can be longer than the long run for the same firm.
   B) The short run is the same for all firms.
   C) The long run is the time frame in which the quantities of all resources can be varied.
   D) The long run is the time frame in which all resources are fixed.
   E) The long run does not exist for some firms.

   Answer: C
   Topic: Long run
   Skill: Level 1: Definition
   Objective: Checkpoint 12.2
   Author: STUDY GUIDE

32) Marginal product equals
   A) the total product produced by a certain amount of labor.
   B) the change in total product that results from a one-unit increase in the quantity of labor employed.
   C) total product divided by the quantity of labor.
   D) the amount of labor needed to produce an increase in production.
   E) total product minus the quantity of labor.

   Answer: B
   Topic: Marginal product
   Skill: Level 1: Definition
   Objective: Checkpoint 12.2
   Author: STUDY GUIDE
33) If 5 workers can wash 30 cars a day and 6 workers can wash 33 cars a day, then the marginal product of the 6th worker equals
   A) 30 cars a day.
   B) 33 cars a day.
   C) 5 cars a day.
   D) 5.5 cars a day.
   E) 3 cars a day.
   Answer: B
   Topic: Marginal product
   Skill: Level 3: Using models
   Objective: Checkpoint 12.2
   Author: STUDY GUIDE

34) Increasing marginal returns occur when the
   A) average product of an additional worker is less than the average product of the previous worker.
   B) marginal product of an additional worker exceeds the marginal product of the previous worker.
   C) marginal product of labor is less than the average product of labor.
   D) total output of the firm is at its maximum.
   E) total product curve is horizontal.
   Answer: B
   Topic: Increasing marginal returns
   Skill: Level 1: Definition
   Objective: Checkpoint 12.2
   Author: STUDY GUIDE

35) If 25 workers can pick 100 flats of strawberries per hour, then average product is
   A) 100 flats per hour.
   B) 125 flats per hour.
   C) 75 flats per hour.
   D) 4 flats per hour.
   E) More information is needed about how many flats 24 workers can pick.
   Answer: D
   Topic: Average product
   Skill: Level 3: Using models
   Objective: Checkpoint 12.2
   Author: STUDY GUIDE
12.3 Short-Run Cost

1) Total cost includes
   A) the cost of variable resources only.
   B) the cost of fixed resources only.
   C) the cost of both variable and fixed resources.
   D) the cost of neither variable nor fixed resources.
   E) all explicit costs and all the implicit costs that actually must be paid using money.

   Answer: C
   Topic: Total cost
   Skill: Level 1: Definition
   Objective: Checkpoint 12.3
   Author: SB

2) Which of the following costs is positive when output is zero?
   A) average variable cost
   B) total variable cost
   C) marginal cost
   D) total fixed cost
   E) None of the above because when output is zero there are no costs.

   Answer: D
   Topic: Total fixed cost
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.3
   Author: TS

3) Which of the following is a fixed cost for ACME manufacturing?
   A) wages paid to labor
   B) the annual fire and theft insurance premiums
   C) the utility bill
   D) raw material costs
   E) the cost of shipping its product to market

   Answer: B
   Topic: Total fixed cost
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.3
   Author: TS
4) Total variable cost
   A) includes the cost of capital.
   B) includes the cost of labor.
   C) includes both the cost of capital and of labor.
   D) does not change when production changes.
   E) is positive when output is zero.

   Answer: B

   Topic: Total variable cost
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.3
   Author: SB

5) The total variable cost curve ___ because ___ as output increases.
   A) slopes upward; variable cost increases
   B) slopes upward; marginal cost increases
   C) slopes downward; variable cost increases
   D) slopes downward; marginal cost increases
   E) is horizontal; fixed cost does not change

   Answer: A

   Topic: Total variable cost
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.3
   Author: CD

6) Which of the following is correct for variable and marginal costs?
   A) They will equal zero if nothing is produced.
   B) The two costs will never equal each other.
   C) They will both increase if fixed costs increase.
   D) Adding the two yields total cost.
   E) Both include only explicit costs of production.

   Answer: A

   Topic: Marginal cost
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.3
   Author: TS
7) When marginal cost is positive, total cost is ____ as output increases.
   A) increasing
   B) decreasing
   C) constant
   D) negative
   E) undefined

   Answer: A
   Topic: Marginal cost
   Skill: Level 3: Using models
   Objective: Checkpoint 12.3
   Author: SB

8) If total fixed cost increases, which of the following will NOT change?
   A) total cost
   B) average fixed cost
   C) marginal cost
   D) average total cost
   E) ALL costs increase when total fixed cost increases.

   Answer: C
   Topic: Marginal cost
   Skill: Level 4: Applying models
   Objective: Checkpoint 12.3
   Author: TS

9) Average total cost equals
   A) the change in total cost divided by the change in output.
   B) total fixed cost divided by output.
   C) average fixed cost plus average variable cost.
   D) total cost minus total variable cost.
   E) average fixed cost plus average variable cost plus marginal cost.

   Answer: C
   Topic: Average total cost
   Skill: Level 1: Definition
   Objective: Checkpoint 12.3
   Author: SB
10) Which of the following always decreases when output increases?
   A) total fixed cost
   B) marginal cost
   C) average variable cost
   D) average fixed cost
   E) total cost.
   Answer: D
   
   Topic: Average fixed cost
   Skill: Level 1: Definition
   Objective: Checkpoint 12.3
   Author: TS

11) The average fixed cost curve
   A) is always positively sloped.
   B) is U-shaped.
   C) has an upside-down U shape.
   D) is always negatively sloped.
   E) is horizontal.
   Answer: D
   
   Topic: Average fixed cost
   Skill: Level 3: Using models
   Objective: Checkpoint 12.3
   Author: SB

12) The total product is 10 units. The average total cost is $30 and the average fixed cost is $10. What is the amount of the total variable cost?
   A) $20
   B) $200
   C) $300
   D) $10
   E) It is impossible to determine with the information given.
   Answer: B
   
   Topic: Average variable cost
   Skill: Level 3: Using models
   Objective: Checkpoint 12.3
   Author: TS
13) If average variable costs increase as output increases, then
   A) total fixed cost must be increasing also.
   B) marginal cost must be greater than average variable cost.
   C) total cost must be constant.
   D) output must be zero.
   E) average total cost must be increasing also.

Answer: B

Topic: MC and AVC
Skill: Level 2: Using definitions
Objective: Checkpoint 12.3
Author: TS

<table>
<thead>
<tr>
<th>Labor (workers)</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>70</td>
</tr>
<tr>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td>5</td>
<td>85</td>
</tr>
</tbody>
</table>

14) The table above shows a total product schedule. Suppose that labor cost $20 per worker and fixed costs are $60. The total variable cost of producing 80 units equals
   A) less than $50.
   B) more that $50 and less than $70.
   C) more than $70 and less than $90.
   D) more than $90 and less than $120.
   E) more than $120.

Answer: C

Topic: Total variable cost
Skill: Level 3: Using models
Objective: Checkpoint 12.3
Author: MR
15) The table above shows a total product schedule. Suppose that labor cost $20 per worker and fixed costs are $60. The total cost of producing 80 units equals
   A) less than $5.
   B) more than $5 and less than $110.
   C) more than $110 and less than $120.
   D) more than $120 and less than $150.
   E) more than $150.
   Answer: D
   Topic: Total cost
   Skill: Level 3: Using models
   Objective: Checkpoint 12.3
   Author: MR

16) The table above shows a total product schedule. Suppose that labor cost $20 per worker and fixed costs are $60. The average variable cost of producing 80 units equals ____ per unit.
   A) $0.75
   B) $1.00
   C) $1.75
   D) $20
   E) $0.25
   Answer: B
   Topic: Average variable cost
   Skill: Level 3: Using models
   Objective: Checkpoint 12.3
   Author: MR

17) The table above shows a total product schedule. Suppose that labor cost $20 per worker and fixed costs are $60. The average total cost of producing 80 units equals ____ per unit.
   A) $0.75
   B) $1.00
   C) $1.75
   D) $60
   E) $0.25
   Answer: C
   Topic: Average total cost
   Skill: Level 3: Using models
   Objective: Checkpoint 12.3
   Author: MR
18) The short-run average total cost, average variable cost, and marginal cost curves are all U-shaped because of
i. constant total fixed cost.
ii. increasing and then decreasing marginal returns as more labor is hired.
iii. economies and diseconomies of scale as the plant size increases.

A) i.
B) ii.
C) i and iii.
D) ii and iii.
E) i, ii, and iii.

Answer: B

Topic: Cost curves
Skill: Level 3: Using models
Objective: Checkpoint 12.3
Author: TS

19) One reason why the average total cost curve is U-shaped is that
A) total fixed cost gets spread out over a larger output as output increases.
B) when marginal cost is greater than average total cost, average total cost decreases.
C) when marginal cost is greater than average variable cost, average variable cost decreases.
D) the marginal product curve is horizontal.
E) The premise of the question is incorrect because average total cost curves are not U-shaped.

Answer: A

Topic: Cost curves
Skill: Level 2: Using definitions
Objective: Checkpoint 12.3
Author: SB
20) At low levels of output, the marginal product curve usually ____ and the marginal cost curve usually ____.
   A) slopes upward; slopes downward
   B) slopes upward; slopes upward
   C) slopes downward; slopes downward
   D) slopes downward; slopes upward
   E) is horizontal; is horizontal
   Answer: A
   Topic: MC and MP
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.3
   Author: SB

21) If marginal cost increases when output increases, then
   A) marginal product must decrease when output increases.
   B) average fixed cost is constant.
   C) total cost is constant.
   D) average variable cost must increase when output increases.
   E) average total cost must decrease when output increases.
   Answer: A
   Topic: MC and MP
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.3
   Author: TS

22) If another worker is hired with a marginal product greater than the previously hired worker, which of the following will be true?
   A) total costs will decrease
   B) fixed costs will decrease
   C) marginal cost will increase
   D) marginal cost will decrease
   E) average fixed costs will increase
   Answer: D
   Topic: MC and MP
   Skill: Level 3: Using models
   Objective: Checkpoint 12.3
   Author: TS
23) When the marginal product is increasing, the
   A) average product is decreasing.
   B) marginal cost is decreasing.
   C) total cost is decreasing.
   D) total product is decreasing.
   E) fixed cost is increasing.

Answer: B

Topic: MC and MP
Skill: Level 2: Using definitions
Objective: Checkpoint 12.3
Author: SB

24) Cost curves shift if
   i. technology changes.
   ii. there are changes in the prices of factors of production.
   iii. productivity changes.
      A) only i.
      B) i and iii.
      C) only ii.
      D) i and ii.
      E) i, ii, and iii.

Answer: E

Topic: Shifts in the cost curves
Skill: Level 3: Using models
Objective: Checkpoint 12.3
Author: SB

25) An increase in the price of labor (a variable resource) shifts
   A) all cost curves upward.
   B) the variable cost curves upward but leaves the fixed cost curves unchanged.
   C) the fixed cost curves upward but leaves the variable cost curves unchanged.
   D) the marginal cost curve rightward.
   E) none of the cost curves.

Answer: B

Topic: Shifts in the cost curves, prices of factors of production
Skill: Level 3: Using models
Objective: Checkpoint 12.3
Author: SB
26) If we know the amount of total cost, average total cost, average variable cost, and marginal cost for each level of output, how can we find the level of output where the marginal product is the greatest?
   A) It is the output for which the marginal cost equals average variable cost.
   B) It is the output for which the total cost is maximized.
   C) It is the output for which the marginal cost is minimized.
   D) It is the output for which the marginal cost equals average total cost.
   E) There is no way to find where marginal product is the greatest knowing only cost data.
   Answer: C
   Topic: MC and MP
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.3
   Author: TS

27) Total cost is equal to the sum of
   A) total revenue and total cost.
   B) total variable cost and total product.
   C) total variable cost and total fixed cost.
   D) total fixed cost and total product.
   E) the marginal cost plus the total fixed cost plus the total variable cost.
   Answer: C
   Topic: Total cost
   Skill: Level 1: Definition
   Objective: Checkpoint 12.3
   Author: STUDY GUIDE

28) Total fixed cost is the cost of
   A) labor.
   B) production.
   C) a firm's fixed factors of production.
   D) only implicit factors of production.
   E) only explicit factors of production.
   Answer: C
   Topic: Total fixed cost
   Skill: Level 1: Definition
   Objective: Checkpoint 12.3
   Author: STUDY GUIDE
29) Jay set up his hot dog stand near the business district. His total variable cost includes the
   A) annual insurance for the hot dog stand.
   B) cost of buying the hot dog stand.
   C) cost of the hot dogs and condiments.
   D) interest he pays on the funds he borrowed to pay for advertising.
   E) revenue he gets when he sells his first hot dog each day.

Answer: C
Topic: Total variable cost
Skill: Level 2: Using definitions
Objective: Checkpoint 12.3
Author: STUDY GUIDE

30) Marginal cost is equal to
   A) the total cost of a firm's production.
   B) the difference between total cost and fixed cost.
   C) a cost that is not related to the quantity produced.
   D) the change in total cost that results from a one-unit increase in output.
   E) the change in fixed cost that results from a one-unit increase in output.

Answer: D
Topic: Marginal cost
Skill: Level 1: Definition
Objective: Checkpoint 12.3
Author: STUDY GUIDE

31) To produce 10 shirts, the total cost is $80; to produce 11 shirts, the total cost is $99. The
    marginal cost of the 11th shirt is equal to
    A) $8.
    B) $9.
    C) $80.
    D) $99.
    E) $19.

Answer: E
Topic: Marginal cost
Skill: Level 3: Using models
Objective: Checkpoint 12.3
Author: STUDY GUIDE
32) Average total cost equals
   A) marginal cost divided by output.
   B) average fixed cost plus average variable cost.
   C) total fixed cost plus total variable cost.
   D) marginal cost plus opportunity cost.
   E) marginal cost multiplied by the quantity of output.

   Answer: B  
   Topic: Average total cost  
   Skill: Level 1: Definition  
   Objective: Checkpoint 12.3  
   Author: STUDY GUIDE

33) To produce 10 shirts, the total cost is $80; to produce 11 shirts, the total cost is $99. The average total cost of the 11th shirt is equal to
   A) $8.  
   B) $9.  
   C) $80.  
   D) $99.  
   E) $19.

   Answer: B  
   Topic: Average total cost  
   Skill: Level 3: Using models  
   Objective: Checkpoint 12.3  
   Author: STUDY GUIDE

34) One of the major reasons for the U-shaped average total cost curve is the fact that
   A) there are increasing returns from labor regardless of the number of workers employed.  
   B) there eventually are decreasing returns from labor as more workers are employed.  
   C) prices fall as output increases.  
   D) the average fixed cost increases as more output is produced.  
   E) the variable cost decreases as more output is produced.

   Answer: B  
   Topic: Cost curves  
   Skill: Level 1: Definition  
   Objective: Checkpoint 12.3  
   Author: STUDY GUIDE
12.4 Long-Run Cost

1) When a firm’s long-run average total cost decreases as its output increases, the firm is experiencing
   A) economies of scale.
   B) diseconomies of scale.
   C) constant returns to scale.
   D) decreasing marginal returns.
   E) decreasing cost of marginal returns.

   Answer: A
   Topic: Economies of scale
   Skill: Level 1: Definition
   Objective: Checkpoint 12.4
   Author: SB

2) If a firm increases both its plant and labor by the same percentage and its average cost decreases, the firm is experiencing which of the following?
   A) increasing marginal returns
   B) diseconomies of scale
   C) economies of scale
   D) random luck
   E) decreasing cost of marginal returns.

   Answer: C
   Topic: Economies of scale
   Skill: Level 1: Definition
   Objective: Checkpoint 12.3
   Author: TS

3) When a firm experiences economies of scale,
   A) its short-run average total cost decreases as its output increases.
   B) its marginal cost decreases as its output increases.
   C) it increases the amount of labor and capital it uses by an equal percentage and its output increases by a larger percentage.
   D) its marginal cost increases as output increases.
   E) it increases the amount of labor and capital it uses by an equal percentage and its average cost increases by a larger percentage.

   Answer: C
   Topic: Economies of scale
   Skill: Level 1: Definition
   Objective: Checkpoint 12.3
   Author: CD
4) The main source of economies of scale is
   A) reductions in the price of factors of production.
   B) greater specialization of both labor and capital.
   C) increasing average costs.
   D) decreasing marginal product.
   E) the ability to hire less labor.

Answer: B

5) A firm can enjoy economies of scale because of increased specialization of
   A) capital only.
   B) labor only.
   C) capital and/or labor.
   D) neither capital nor labor.
   E) costs.

Answer: C

6) Economies of scale can occur as a result of which of the following?
   A) increasing marginal returns as the firm increases its size
   B) lower fixed cost as the firm increases its size
   C) management difficulties as the firm increases its size
   D) greater specialization of labor and capital as the firm increases its size
   E) increased total cost when the firm increases its size.

Answer: D
7) If a firm increases the size of its plant and its labor force by the same percentage and as a result its average total cost increases, then the firm is experiencing
   A) economies of scale.
   B) diseconomies of scale.
   C) constant returns to scale.
   D) decreasing marginal returns.
   E) increasing marginal returns.

   Answer: B
   Topic: Diseconomies of scale
   Skill: Level 1: Definition
   Objective: Checkpoint 12.4
   Author: SB

8) When a firm becomes so large it is difficult to coordinate and control, it is most likely that
   A) economies of scale have begun.
   B) diseconomies of scale have begun.
   C) average total cost begins to fall.
   D) long-run average costs become negative.
   E) there is increasing marginal returns to increasing the firm's plant size.

   Answer: B
   Topic: Diseconomies of scale
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.4
   Author: SB

9) A firm decreases its scale of operation and discovers that its long-run average costs decrease. Which of the following does this indicate?
   A) Labor's marginal product has increased.
   B) Diseconomies of scale were absent in the larger plant.
   C) The firm's scale initially was so large that it experienced diseconomies of scale.
   D) The firm's scale initially was too small to experience economies of scale.
   E) Its long-run marginal cost was smaller with the larger plant than with the smaller plant.

   Answer: C
   Topic: Diseconomies of scale
   Skill: Level 3: Using models
   Objective: Checkpoint 12.4
   Author: TS
10) Bob is an entrepreneur who hires college students to sell hot dogs in the busy downtown area of his hometown. Each student is paid the same wage rate, given an identically supplied hot dog cart, and assigned to a specific area. If as Bob increases his scale of operation from 3 carts to 4 carts, each cart produces and sells the same number of hot dogs per day, Bob experiences
A) economies of scale.
B) diseconomies of scale.
C) constant returns to scale.
D) decreasing total costs.
E) zero marginal cost.
Answer: C

Topic: Constant returns to scale
Skill: Level 3: Using models
Objective: Checkpoint 12.4
Author: SB

11) The long run average cost curve
A) is the sum of a firm's short run average cost curves.
B) shows the lowest average cost facing a firm as it increases output changing both its plant and labor force.
C) initially rises when output increases and then falls when output increases.
D) always falls as output increases.
E) always rises as output increases.
Answer: B

Topic: Long-run average cost curve
Skill: Level 1: Definition
Objective: Checkpoint 12.4
Author: CD

12) What does the long-run average cost curve show?
A) the interaction between average fixed cost and marginal cost
B) the lowest average cost to produce each output level in the long run
C) the distinction between long-run fixed and long-run variable costs
D) the lowest average marginal cost of producing each output level at any time.
E) Answers A, B, and C are correct.
Answer: B

Topic: Long-run average cost curve
Skill: Level 1: Definition
Objective: Checkpoint 12.4
Author: TS
13) Moving from left to right along a long-run average cost curve,
   A) the scale of production always increases.
   B) average total cost always decreases.
   C) average total cost always increases.
   D) average total cost is always constant.
   E) average total cost first increases, reaches a maximum, and then decreases.
   Answer: A
   Topic: Long-run average cost curve
   Skill: Level 3: Using models
   Objective: Checkpoint 12.4
   Author: SB

14) When the long-run average cost curve is downward sloping,
   A) economies of scale are present.
   B) diseconomies of scale are present.
   C) the firm experiences constant returns to scale.
   D) the average fixed cost curve must be upward sloping.
   E) The premise of the question is wrong because long-run average cost curves never slope downward.
   Answer: A
   Topic: Long-run average cost curve
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.4
   Author: SB

15) Which of the following is true in the long run?
   A) Total cost equals fixed cost.
   B) Total cost is constant.
   C) All costs are variable.
   D) Marginal cost equals zero.
   E) None of the above are true in the long run.
   Answer: C
   Topic: Long-run average cost
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.4
   Author: TS
16) Automated Teller Machines typically are not used by small banks. Why?
   A) The cost of installing ATMs is too large for small banks so that the average total cost of using an ATM is greater than using a teller.
   B) Smaller banks do not have the scale of operation to make the average total cost of using an ATM less than that of using a teller.
   C) The average total cost of using a teller is less than that of an ATM if there are only a small number of transactions.
   D) None of the above answers is correct since the reason small banks use tellers is because their customers do not like using ATMs.
   E) Answers A, B, and C are all correct.

   Answer: E

   Topic: Eye on the U.S. economy, the ATM and the cost of getting cash
   Skill: Level 3: Using models
   Objective: Checkpoint 12.4
   Author: TS

17) Economies of scale occur whenever
   A) marginal cost decreases as production increases.
   B) total cost increases as production is increased by increasing all inputs by the same percentage.
   C) marginal product increases as labor increases and capital decreases.
   D) a firm increases its plant size and labor employed, and its output increases by a larger percentage.
   E) marginal product decreases as labor increases and capital increases.

   Answer: D

   Topic: Economies of scale
   Skill: Level 1: Definition
   Objective: Checkpoint 12.4
   Author: STUDY GUIDE

18) The main source of economies of scale is
   A) better management.
   B) constant returns to plant size.
   C) specialization.
   D) long-run cost curves eventually sloping downward.
   E) increases in the labor force not matched by increases in the plant size.

   Answer: C

   Topic: Economies of scale
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.4
   Author: STUDY GUIDE
19) Diseconomies of scale can occur as a result of which of the following?
   A) increasing marginal returns as the firm increases its size
   B) lower fixed cost as the firm increases its size
   C) management difficulties as the firm increases its size
   D) greater specialization of labor and capital as the firm increases its size
   E) increases in the labor force not matched by increases in the plant

   Answer: C
   Topic: Diseconomies of scale
   Skill: Level 2: Using definitions
   Objective: Checkpoint 12.4
   Author: STUDY GUIDE

20) Constant returns to scale occur when an equal percentage increase in plant size and labor
   A) increases total cost.
   B) does not change total cost.
   C) increases long-run average cost.
   D) does not change long-run average cost.
   E) does not change production.

   Answer: D
   Topic: Constant returns to scale
   Skill: Level 1: Definition
   Objective: Checkpoint 12.4
   Author: STUDY GUIDE

21) A firm's long-run average cost curve shows the ____ average cost at which it is possible to produce each output when the firm has had ____ time to change both its labor force and its plant.
   A) highest; sufficient
   B) lowest; sufficient
   C) lowest; insufficient
   D) highest; insufficient
   E) average; sufficient

   Answer: B
   Topic: Long-run average cost curve
   Skill: Level 1: Definition
   Objective: Checkpoint 12.4
   Author: STUDY GUIDE
22) Economies of scale and diseconomies of scale explain
   A) cost behavior in the short run.
   B) profit maximization in the long run.
   C) the U-shape of the long-run average cost curve.
   D) the U-shape of the short-run average total cost curve.
   E) the U-shape of the marginal cost curves.

Answer: C

*Topic: Long-run average cost curve*
*Skill: Level 1: Definition*
*Objective: Checkpoint 12.4*
*Author: STUDY GUIDE*