MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) Firms that survive in the long run are usually those that
   A) remain small.                           B) strive for the largest possible profit.
   C) use capital-intensive technology.      D) become as large as possible.

2) In Figure 11.3, the intersection of curves D and B is the point at which
   A) average fixed cost is minimized.       B) average total cost is minimized.
   C) average variable cost is minimized.    D) total product is maximized.

3) In Figure 11.3, the distance between curves B and C decreases because
   A) there are diminishing returns.         B) there are rising marginal costs.
   C) total cost decreases.                 D) average fixed cost declines.

4) The range over which a firm’s average variable cost is decreasing is the same as the range over which its
   A) average product is decreasing.         B) average fixed cost is decreasing.
   C) average product is increasing.        D) marginal cost is increasing.
5) In Figure 11.2, the total fixed cost curve is
   A) 0c.    B) 0b.    C) ea.    D) ec.

6) In Figure 11.3, the average fixed cost curve is
   A) C.    B) B.    C) A.    D) D.

7) In Figure 11.3, the average total cost curve is
   A) D.    B) C.    C) B.    D) A.
Table 11.2
Swanky's Cost Schedule

<table>
<thead>
<tr>
<th>Labor (workers)</th>
<th>Output (sweaters per day)</th>
<th>Cost (dollars)</th>
<th>TFC</th>
<th>TVC</th>
</tr>
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<tbody>
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</table>

8) Refer to Table 11.2. The average fixed cost of producing 9 sweaters per day is
   A) $2.22.  B) $5.55.  C) $5.00.  D) $7.77.

Table 11.3

<table>
<thead>
<tr>
<th>Labor (workers)</th>
<th>Output (sweaters per day)</th>
<th>Cost (dollars)</th>
<th>TVC</th>
<th>TC</th>
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</table>

9) In Table 11.3, fixed cost is
   A) $0.  B) $20.  C) $50.  D) $30.

10) In Table 11.3, the average variable cost of producing 14 sweaters is
    A) $7.86.  B) $10.00.  C) $0.175  D) $5.71.
11) In Figure 11.2, the total cost curve is
   A) 0b.  B) ea.  C) 0c.  D) ec.

12) In general, increasing returns occur
   A) through the entire range of production.
   B) as output expands at low levels of production.
   C) whenever the slope of the total product curve is positive.
   D) as output expands at high levels of production.

13) Total cost is the sum of fixed costs and
   A) explicit costs.  B) accounting costs.  C) implicit costs.  D) variable costs.

14) Marginal cost is calculated as
   A) total cost divided by output.
   B) the increase in total cost divided by the increase in labor, given the amount of capital.
   C) the increase in total cost divided by the increase in output.
   D) total cost minus total fixed cost.

15) Average total costs are total costs
   A) per unit of labor.  B) per unit of output.
   C) divided by fixed costs.  D) divided by variable costs.

16) If total fixed cost is shown on the vertical axis as output varies along the horizontal axis, the curve
   representing a firm’s total fixed cost
   A) is vertical.  B) has negative slope.
   C) has positive slope.  D) is horizontal.
Table 11.2
Swanky's Cost Schedule

<table>
<thead>
<tr>
<th>Labor (workers)</th>
<th>Output (sweaters per day)</th>
<th>Cost (dollars)</th>
</tr>
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</table>

17) In Table 11.2, total variable cost at 16 units of output is
   A) $20. B) $120. C) $60. D) $100.

18) In Figure 11.1, an inefficient point is
   A) c. B) a. C) f. D) e.

19) In Figure 11.1, marginal product can be measured as the
   A) intercept of the total product curve. B) ratio of output to labor.
   C) slope of the total product curve. D) ratio of labor to output.

20) In Figure 11.1, marginal product is zero at point
   A) h. B) b. C) a. D) d.

21) In Figure 11.1, average product at point f is
   A) 0.50. B) 15. C) 0. D) 3.75.

22) In Figure 11.1, after the second worker is hired, marginal product is
   A) increasing. B) constant. C) decreasing. D) zero.
23) In general, the law of diminishing returns implies that as more of a variable input is used, marginal product will eventually
A) exceed average product. B) become constant.
C) equal total product. D) be less than average product.

24) Diminishing marginal returns refer to a situation in which the
A) marginal cost of the last worker hired is less than the marginal cost of the previous worker hired.
B) average product of the last worker hired is less than the average product of the previous worker hired.
C) marginal product of the last worker hired is less than the marginal product of the previous worker hired.
D) average cost of the last worker hired is less than the average cost of the previous worker hired.

25) In the long run, a firm can vary
A) both its labor and its capital inputs. B) its capital input but not its labor input.
C) its labor input but not its capital input. D) neither its labor nor its capital input.

26) The short run is a period of time in which
A) input prices are fixed. B) at least one input is fixed.
C) all inputs are fixed. D) output prices are fixed.

27) Points on a firm's total product curve are
A) both attainable and technologically efficient. B) attainable but not technologically efficient.
C) neither attainable nor technologically efficient. D) technologically efficient but not attainable.

28) To calculate the marginal product of labor, divide the increase in total product by the increase in the
A) wage of labor, while allowing the price of capital to vary in the same proportion.
B) quantity of labor, while allowing the quantity of capital to vary in the same proportion.
C) wage of labor, while holding the price of capital constant.
D) quantity of labor, while holding the quantity of capital constant.

29) If a firm's marginal product of labor is less than its average product of labor, then an increase in its use of labor will
A) increase its marginal product of labor. B) reduce its total product.
C) reduce its average product of labor. D) not change its average product of labor.
Table 11.1

Complete the table before answering the questions.

Swanky's Short-Run Production Function

<table>
<thead>
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<th>Units of labor</th>
<th>Units of output</th>
<th>Marginal product</th>
<th>Average product</th>
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30) In Table 11.1, the marginal product of the third worker is