1. You are the owner of an orange orchard in south Florida. Assume that the orange industry is perfectly competitive, and that firm-level costs do not change as the industry expands or contracts. In 1999 your firm charged a price of $5.00 per bushel and earned economic profits of $34,500. Use words and graphs to answer the following:

(a) Is the industry in which you operate currently in long-run equilibrium? Explain why or why not.
(b) Do you expect to be able to continue to charge the same price and earn the current level of profits into the future? Explain.

2. Consider the following data for farmer Bill (Bob’s second cousin on his mother’s side) who sells beans in a perfectly competitive market. Assume the current market price is $6.00 per bushel, and costs change with quantity as given below.

<table>
<thead>
<tr>
<th>Q (bushels)</th>
<th>FC</th>
<th>VC</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>700</td>
<td>0</td>
</tr>
<tr>
<td>100</td>
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</tr>
<tr>
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</tr>
<tr>
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<tr>
<td>700</td>
<td>700</td>
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</table>

(a) How many bushels of beans should Bill produce in the short run? Why?
(b) Is the bean market in long-run competitive equilibrium? Explain.
(c) Would the short run output decision of the firm above be affected if fixed costs increased to $800.00? Explain.

3. In general terms, state the profit maximizing condition for a perfectly competitive firm.

4. Starting from a point of long-run competitive equilibrium where minimum average total costs are $10.00, show graphically and describe the effects of a decrease in market demand. What happens in the short run? What price will result in the long run? Explain, and use at least two graphs to answer this question.

5. What are the circumstances under which a perfectly competitive firm will produce zero output ("shut-down") in the short-run? What determines whether a PC firm will continue to operate in the long-run? Use words and a graph to explain.
6. Which of the following best describes the profit maximizing condition for a perfectly competitive firm?
   a. Set price such that price = average total cost.
   b. Set price such that total revenue is maximized.
   c. Set price such that price = marginal cost.
   d. Produce output up to the point where price = marginal cost.
   e. Produce output up to the point where average variable costs are minimized.
   f. Produce output so that marginal revenue = price.
   g. Produce the quantity of output where average total cost is at its lowest point.

7. Which of the following best describes the profit maximizing condition for a perfectly competitive firm?
   a. Set price where marginal profit is the highest
   b. Set price where marginal costs are minimized
   c. Set price where marginal revenues are maximized
   d. Produce the quantity where marginal profit is zero
   e. Produce the quantity where marginal cost is zero
   f. Produce the quantity where diminishing marginal returns set in.

8. Wheat is produced in a perfectly competitive market. Market demand for wheat increases. This will cause the individual wheat farmer’s marginal revenue to __________ and their profit maximizing level of output to __________.
   a. increase; increase
   b. increase; decrease
   c. decrease; increase
   d. decrease; decrease

9. Assume soybeans are produced in a perfectly competitive industry. A soybean farmer is currently maximizing his profits. If the market price of soybeans falls then, after the farmer adjusts to the new price, he will be producing __________ bushels of soybeans and his profit will be __________.
   a. fewer; the same
   b. fewer; lower
   c. more units of output; the same
   d. the same number of; the same

10. TRUE/FALSE
    (a) _____ If marginal revenue exceeds marginal cost, then the firm is operating at a quantity less than the profit maximizing quantity.
    (b) _____ In a perfectly competitive market, if market price is less than minimum average total cost but greater than minimum average variable cost then firms in the market are earning positive economic profits.
Use the following table of short run costs for a PC firm to answer questions 11-14:

<table>
<thead>
<tr>
<th>Q</th>
<th>TFC</th>
<th>TVC</th>
<th>TC</th>
<th>MC</th>
</tr>
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<td>$0</td>
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<tr>
<td>6</td>
<td>40</td>
<td>73</td>
<td>113</td>
<td>20</td>
</tr>
</tbody>
</table>

11. Assume that the market price is $12 per unit. To maximize profits, this firm should sell __________ unit(s).
   a. zero
   b. one
   c. two
   d. three
   e. five
   f. six

13. Assume that the market price is $7 per unit. To maximize profits, this firm should sell __________ unit(s).
   a. zero
   b. one
   c. two
   d. three
   e. five
   f. six

14. If the market price is $9 per unit then:
   a. The firm will produce 4 units of output in the short run, but will leave the market in the long run.
   b. The firm will produce 0 units of output in the short run, and will leave the market in the long run.
   c. The firm will produce 4 units of output in the short run, and will expand the scale of operations in the long run.
   d. The firm will produce 4 units of output in the short run, and will raise price in the long run.

14. If the market price is $20 per unit, to maximize profits, this firm should sell __________ unit(s).
   a. zero
   b. one
   c. six
   d. either one or six
   e. more than six
Use the following graph to answer questions 15-19:

15. If market price is $8, then which of the following is true?
   a. The firm should produce 14 units of output. This will earn the firm positive economic profits, so we can conclude that the market is not in long-run competitive equilibrium.
   b. The firm should produce 12 units of output. This will earn the firm positive economic profits, so we can conclude that the market is not in long-run competitive equilibrium.
   c. The firm should produce 14 units of output. This will earn the firm negative economic profits, so we can conclude that the market is not in long-run competitive equilibrium.
   d. The firm should produce 14 units of output. This will earn the firm positive economic profits, so we can conclude that the market is in long-run competitive equilibrium.

16. If the market price is $4 per unit then,
   a. The firm should produce 10 units of output to maximize profits in the short-run, and the firm should exit the market in the long-run.
   b. The firm should produce 11 units of output to maximize profits in the short-run, and the firm should exit the market in the long-run.
   c. The firm should produce 11 units of output to maximize profits in the short-run, and the firm should stay in the market in the long-run.
   d. The firm should produce 12 units of output to maximize profits in the short-run, and the firm should stay in the market in the long-run.
   e. The firm should produce zero in the short-run, and the exit the market in the long-run.

17. In the long-run the market price of this good will be:
   a. greater then $8
   b. exactly $8
   c. between $5 and $8
   d. exactly $5
   e. between $4 and $5
   f. exactly $4
   g. below $4
18. In the short-run, firms will not produce any output if:
a. Any price below $8
b. Any price above $8
c. Any price below $5
d. Any price above $5
e. Any price below $3
f. Any price above $3

19. If the market price is $3, then it must be true that:
a. the cost of variable inputs is exactly $30
b. the cost of fixed inputs is exactly $30
c. revenues exceed total costs
d. some fixed costs are being covered
e. profits will equal a loss in the amount of fixed costs
f. a and e are true
g. b and d are true
h. none of the above are true

20. A PC firm’s supply curve is:
a. The portion of its marginal revenue curve that is above minimum average total costs
b. The portion of its marginal cost curve that is above minimum average total costs
c. The portion of its marginal cost curve that is above minimum average variable costs
d. The portion of its average total cost curve that is above marginal revenue
e. The portion of its average variable cost curve that is above marginal cost

21. Assume that the current (short-run) market price of a good sold in a PC market is $10. At this
price, all firms earn more than the normal profit. Which of the following is true?
a. In the long-run, price will be greater than $10
b. In the long-run, price will be less than $10
c. In the long-run, price will be equal to $10
d. We cannot make any conclusions about long-run price without more information.

22. Complete the following table for a single firm in the short run, and answer the questions below:

<table>
<thead>
<tr>
<th>Q</th>
<th>TFC</th>
<th>TVC</th>
<th>TC</th>
<th>AVC</th>
<th>ATC</th>
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</table>

(a) If market price is $20, the firm should produce _____ units of output in the short run, and _______ (exit, stay in) the market in the long-run.
(b) If market price is $30, the firm should produce _____ units of output to maximize profits. In the long-run, firms will _____.
(c) The long-run equilibrium price of this good will be _____.
