Practice Questions for Topic 2: Producer Behaviour

1. Use the following table to answer the question below:

Employee-hours	Output
0	0
1	45
3	90
6	135
10	180

Suppose that the hourly wage rate is \$9, total fixed costs are \$75, and the price of the good produced is 80 cents. In order to maximize profits, a price-taking firm should produce

(a) less than 45 units.

(b) between 45 and 90 units

(c) between 90 and 135 units

(d) between 135 and 180 units.

(e) more than 180 units

2. As the price of flour (an input into the cookie production process) increases, price-taking firms that produce cookies will

(a) increase the supply of cookies.

(b) increase the quantity of cookies supplied.

(c) decrease the supply of cookies.

(d) decrease the quantity of cookies supplied.

(e) leave their production unchanged.

3. Ryerson Corp. has a production function given by $q = 100\sqrt{L}$, where L is the quantity of labour (in hours). The marginal product from increasing labour from 1 to 4 hours is

(a) 100.

(b) 200.

(c) 4.

(d) 400.

(e) 300.

4. If the percentage change in quantity supplied is greater than the percentage change in price, supply is classified as

   (a) perfectly inelastic.
   (b) inelastic.
   (c) unit elastic.
   (d) elastic.
   (e) perfectly elastic.

5. If a monopolist faces the demand curve given by $q = 6 - 0.2p$, then her MRPU function is

   (a) MRPU $= 30 - 5q$.
   (b) MRPU $= 60 - 10q$.
   (c) MRPU $= 30 - 10q$.
   (d) MRPU $= 6 - 5q$.
   (e) MRPU $= 6 - 0.4q$.

6. Suppose a price-taking firm collects total revenues of \$1000 when it produces 200 units. If the marginal cost of producing the 200th units is \$4, the firm should

   (a) expand production because price is greater than marginal costs.
   (b) contract production because price is greater than marginal costs.
   (c) expand production because price is less than marginal costs.
   (d) contract production because price is less than marginal costs.
   (e) leave production unchanged because price equals marginal costs.

7. If a monopolist increases total output sold from 14 to 15 by lowering its price from \$32 to \$30, its marginal revenue would be:

   (a) -\$2.
   (b) \$2.
   (c) \$448.
   (d) \$450.
   (e) \$452.

8. Suppose a 1% decrease in the price of a good results in a 0.5% decrease in the quantity supplied. Supply would be categorized as being

   (a) perfectly inelastic.
   (b) perfectly elastic.
   (c) inelastic.
   (d) elastic.
   (e) unit elastic.

Use the following to table to answer questions 9-11:

Employee-hours	Output
0	0
1	40
4	80
9	120
16	160

9. Suppose that the hourly wage rate is \$8, total fixed costs are \$200, and the price of the good produced is \$1.40 cents. A price-taking firm will earn a _____ of _____ when it produces 80 units of output.

   (a) loss; \$120
   (b) profit; \$104
   (c) loss; \$152
   (d) profit; \$120
   (e) loss; \$104

10. Suppose that the hourly wage rate is \$8, total fixed costs are \$200, and the price of the good produced is \$1.40 cents. Which of the output levels in the table would allow a price-taking firm to earn the largest profit?

    (a) 40 units.
    (b) 80 units.
    (c) 120 units.
    (d) 160 units.
    (e) both (c) and (d).

11. Suppose that the hourly wage rate is \$8, total fixed costs are \$400, and the price of the good produced is \$1.40 cents. Which of the output levels in the table would allow a price-taking firm to earn the largest profit?

    (a) 40 units.
    (b) 80 units.
    (c) 120 units.
    (d) 160 units.
    (e) both (c) and (d).

12. If a monopolist faces the demand function given by $q = 30 - p/3$, then the price at which MRPU is zero is

    (a) \$90.
    (b) \$45.
    (c) \$30.
    (d) \$15.
    (e) \$3.

13. If a firm collects \$100 in total revenues when it sells 5 units, and \$120 in total revenue when it sells 6 units, one can infer the firm is

    (a) perfectly competitive.
    (b) not subject to the law of diminishing marginal product.
    (c) a monopolist.
    (d) not a price-taker.
    (e) profit-maximizing.

14. When a price-taker sells additional units,

    (a) total revenue always rises.
    (b) marginal revenue always falls.
    (c) total revenues always remain unchanged.
    (d) total revenues always fall
    (e) marginal revenue may rise or fall.

15. A vertical supply curve has a price elasticity of supply equal to

    (a) -1.
    (b) 0.
    (c) 1.
    (d) 10.
    (e) infinity.

16. In general, if the cost of a fixed input increases,

    (a) total costs are unchanged.
    (b) the profit maximizing-level of total product increases.
    (c) marginal costs are unchanged.
    (d) marginal costs increase.
    (e) the profit maximizing-level of total product decreases.

17. Use the following table to answer the question below:

Quantity	Price
1	\$10
2	9
3	8

For a monopolist, the marginal revenue of selling the third unit is

(a) \$28.

(b) \$24.

(c) \$6.

(d) \$4.

(e) \$2.

18. Suppose that the MCPU function for a price-taking firm is given by MCPU $= 5 + 10Q$, and that the price of the good produced is \$205. If this firm is producing 30 guns, we can conclude that

(a) the current level of total product is profit-maximizing.

(b) increasing total product would increase profits.

(c) decreasing total product would increase profits.

(d) increasing the price charged would increase profits.

(e) none of the above.

19. Suppose that the MCPU function for a price-taker is given by MCPU $= 10 + 9q$. If the price of the good produced is \$100, what is the profit-maximizing level of total output for this firm?

(a) 10.

(b) 9.

(c) 5.

(d) 20.

(e) 1.

20. The profit maximization rule MRPU = MCPU applies to

(a) monopolists only.

(b) price-takers only.

(c) imperfectly competitive firms only.

(d) perfectly competitive firms only.

(e) all firms.

21. Suppose that the inverse supply function for a certain good is $p = -2.5 + q/2$. If price is \$4, price elasticity of supply is approximately

    (a) 0.62.
    (b) 0.15.
    (c) 0.50.
    (d) 1.
    (e) 0.38.

22. XYZ Inc. has a production function given by $q = 100\left(\sqrt{L} + \sqrt{K}\right)$, where L is the quantity of labour (in hours), and K is the quantity of machines. If the number of machines is fixed at 4, what level of labour what enable XYZ Inc. to produce 400 units of output?

    (a) 1.
    (b) 4.
    (c) 9.
    (d) 16.
    (e) 25.

23. Refer to the previous question. If labour costs \$10/hour, what is the marginal cost of increasing output from 400 to 500 units?

    (a) \$100.
    (b) \$50.
    (c) \$1000.
    (d) \$500.
    (e) \$10.

24. Suppose 30 employee-hours can produce 50 units of output. Assuming the law of diminishing marginal product holds, to produce 100 units of output will require

    (a) an additional 30 employee-hours.
    (b) less than 30 additional employee-hours.
    (c) a total of 60 or more employee-hours.
    (d) more than 60 additional employee-hours.
    (e) a total of 60 or less employee-hours.

25. Suppose that a price-taking producer has a MCPU function given by MCPU $= -1 + q/50$. The lowest (per unit) price that this producer would be willing to sell 100 units for is

    (a) \$1.
    (b) \$50.
    (c) \$49.
    (d) \$2.
    (e) \$100.

26. When a producer increases total product from 56 to 81 units, total costs increase from \$1000 to \$1020. As a rough approximation, at $q = 68.5$, the MCPU is

    (a) \$20.00.
    (b) \$17.86.
    (c) \$0.80.
    (d) \$12.60.
    (e) \$14.60.

27. From the law of diminishing marginal product, one can infer that the

    (a) MRPU function is strictly increasing.
    (b) MCPU function is strictly increasing.
    (c) MCPU function may be increasing or decreasing.
    (d) MRPU function is constant.
    (e) MRPU function is strictly concave.

28. Suppose a price-taker is producing a good whose price is \$10. If the total product of this producer increases from 300 to 341 units, the MRPU at $q = 320.5$ is

    (a) \$410.
    (b) \$10.
    (c) \$3205.
    (d) \$3410.
    (e) \$41.

29. Suppose that the supply function for a certain good is $q = -10 + 5p$. At a price of \$4, producer surplus is

    (a) \$40.
    (b) \$50.
    (c) \$25.
    (d) \$20.
    (e) \$10.

30. Refer to the previous question. If total cost is \$50, profit at this price is equal to

    (a) -\$40.
    (b) \$0.
    (c) \$75.
    (d) \$40.
    (e) -\$25.

31. Suppose that a price-taking producer has a supply function given by $q = 200 + 2p$. What is this producer's MCPU function?

    (a) MCPU $= 100 - 2q$.
    (b) MCPU $= -100 + q/2$.
    (c) MCPU $= 200 + 2q$.
    (d) MCPU $= 50 + 2q$.
    (e) MCPU $= 100 + q/2$.

32. A monopolist can sell 9 units of a certain good at \$10 per unit. He can sell 10 units of this good if he lowers his price to \$9.50 per unit. Therefore, he would lower his price to \$9 if his marginal cost for the 10th unit is

    (a) \$5 or less.
    (b) \$9 or less.
    (c) at least \$10.
    (d) at least \$95.
    (e) greater than \$9.50.

33. If total fixed costs for a price-taker increase, there would be _____ the line representing the supply function for that firm.

    (a) an upward movement along
    (b) a downward movement along
    (c) a leftward shift of
    (d) a rightward shift of
    (e) no shift of, or movement along,

34. Suppose that a monopolist faces a demand function given by $q = 10 - 0.5p$, and has a MCPU function given by MCPU $= 2 + 2q$. The profit-maximizing level of total output is

    (a) 2.
    (b) 3.
    (c) 4.5.
    (d) 8.
    (e) 9.

35. Refer to the previous question. If this monopolist is profit-maximizing, what price will she charge?

    (a) \$12.
    (b) \$8.
    (c) \$11.
    (d) \$18.
    (e) \$14.

Answer Key

1. d
2. c
3. a
4. d
5. c
6. a
7. b
8. c
9. a
10. e
11. e
12. b
13. a
14. a
15. b
16. c
17. c
18. c
19. a
20. e
21. a
22. b
23. b
24. c
25. a
26. c
27. b

28. b
29. e
30. a
31. b
32. a
33. e
34. b
35. e