Economics 323 Microeconomic Theory

Questions

1. Oligopoly is a market structure with
   a. few firms
   b. one firm
   c. price-taking firms
   d. numerous firms whose products are imperfect substitutes
   e. none of the above

2. In the long run, oligopolists earn economic profits that are
   a. positive
   b. zero
   c. negative
   d. positive or zero
   e. positive, zero, or negative

3. A Cournot duopolist maximizes profits by selecting output where
   a. \( P = MC \)
   b. \( MR = MC \)
   c. \( P = TC \)
   d. \( P = VC \)
   e. \( P = FC \)

4. A firm with a total revenue \( TR = 4Q \) _____ a Cournot duopolist.
   a. must be
   b. would be if \( P = 2 \)
   c. would be if \( P = 4 \)
   d. would be if \( P = 8 \)
   e. could never be

5. Cournot duopolists choose output assuming _____ stays the same.
   a. their rival's price
   b. market price
   c. their rival's quantity
   d. total industry output
   e. their rival's cost
6. The market demand curve for a pair of Cournot duopolists is given as \( P = 56 - 2Q \), where \( Q = Q_1 + Q_2 \). The constant per unit marginal cost is 20 for each duopolists (there are no fixed costs). What is the marginal revenue function for the first firm?
   a. \( MR = 56 - Q \)
   b. \( MR = 56 - 2Q \)
   c. \( MR = 56 - Q_1 - 2Q_2 \)
   d. \( MR = 56 - Q_2 - 2Q_1 \)
   e. none of the above

7. And what is the reaction function for the first firm?
   a. \( Q_1 = 36 - 2Q_2 \)
   b. \( Q_1 = 36 - Q_2 \)
   c. \( Q_1 = 18 - \frac{Q_2}{2} \)
   d. \( Q_1 = 9 - \frac{Q_2}{2} \)
   e. none of the above

8. And what total quantity would the firms produce?
   a. 6
   b. 12
   c. 18
   d. 24
   e. none of the above

9. And what price would they charge?
   a. 8
   b. 12
   c. 24
   d. 32
   e. none of the above

10. And how much economic profit will each firm earn?
    a. 18
    b. 36
    c. 60
    d. 72
    e. none of the above
Solutions

1a Oligopoly is a market structure with few firms.
2d In the long run, oligopolists earn economic profits that are positive or zero.
3b A Cournot duopolist maximizes profits by selecting output where MR = MC.
4e A firm with a total revenue TR = 4Q could never be a Cournot duopolist.
5c Cournot duopolists choose output assuming their rival's quantity stays the same.

6e The market demand curve for a pair of Cournot duopolists is given as \( P = 56 - 2Q \), where \( Q = Q_1 + Q_2 \). The constant per unit marginal cost is 20 for each duopolists (there are no fixed costs). What is the marginal revenue function for the first firm? MR = \( 56 - 2Q_2 - 4Q_1 \), none of the above (double the slope of the output of firm one)

7d And what is the reaction function for the first firm? \( Q_1 = 9 - Q_2/2 \)
Set 20 = MC = MR = \( 56 - 2Q_2 - 4Q_1 \) and solve for \( Q_1 \) as function of \( Q_2 \)
8b And what total quantity would the firms produce? \( Q = 12 \)
Plug \( Q_2 = 9 - Q_1/2 \) into \( Q_1 = 9 - Q_2/2 \) and solve for \( Q_1 = 6. Q_2 = 6. \)
9d And what price would they charge? \( P = 56 - 2(12) = 32 \)
10d And how much economic profit will each firm earn? 72
\( (P - c)Q = (32 - 20)6 = (12)6 = 72 \)

See Figure 13.3 on page 431.