Multiple Choice. Two points each.
1. A prisoner's dilemma game is one in which
   A. players are trapped by their incentive to pursue their own self-interest.
   B. players do better if they cooperate than they do if they compete.
   C. players have an incentive to cheat on the cooperative agreement.
   D. the Nash equilibrium is not the joint optimal solution for the players.
   E. all the above.

2. In time series data, deviations from trend due to variations in general economic conditions are
   A. trend comovements.
   B. seasonal variations.
   C. cyclical variations.
   D. irregular variations.
   E. time series abnormalities.

3. Pace's total cost of producing CO2 cartridges is given by $TC = 0.5X^3 - 24X^2 + 144X$. The level of output that minimizes average total cost is
   A. 12 cartridges.
   B. 10 cartridges.
   C. 18 cartridges.
   D. 20 cartridges.
   E. 24 cartridges.

4. Along a demand curve with unitary elasticity everywhere, total revenue
   A. increases as output increases.
   B. decreases as output increases.
   C. remains constant as output increases.
   D. increases and then decreases as output increases.
   E. decreases and then increases as output increases.

5. A perfectly competitive market is a group of
   A. many individuals' and firms' trading a good or service.
   B. individuals' and firms' trading many goods and services.
   C. businesses organized into a cartel.
   D. farmers' selling produce.
   E. businesses' selling many different products.

6. When average profit is increasing with increases in output, marginal profit must be
A. increasing.
B. less than average profit.
C. greater than average profit.
D. decreasing.
E. constant.

7. In the bargaining, ultimatum game, why does the first-mover rarely make a strongly one-sided offer?
A. An equal split is a dominant strategy.
B. They tend to overestimate the payout to the second mover.
C. A one-sided offer can anger the second mover.
D. Simultaneous moves prevent one-sided offers.
E. None of the above.

8. What is the advantage to a particular firm of cheating on an otherwise effective cartel?
A. The industry can then act like a monopoly.
B. It decreases risk.
C. It enhances credibility.
D. It always pays in the short run and may pay in the long run.
E. It always pays in the long run and may pay in the short run.

9. An example of implicit costs is the
A. bad-debt liabilities arising out of excessive sales on credit.
B. wages paid to the owners' children.
C. opportunity cost of owner-supplied capital and labor that is not recognized by accountants.
D. prices paid for purchased inputs.
E. the alternative uses for money that could be borrowed.

10. The difference between accounting and economic profit is
A. because of confusion over tax laws.
B. because economists recognize the value of owner resources at their next best alternative use.
C. because of superior training received by accountants.
D. proportionately very small for owner-managed firms.
E. a decreasing function of interest rates.

11. In Russia, as per capita income rises from $1,980 to $2,020, everything else remaining constant, annual per capita consumption of vodka falls from 525 to 475 liters; this implies an income elasticity of demand for vodka of
A. -0.50.
B. -5.0.
C. 2.0.
D. 5.0.
E. 0.50.
12. A dominant strategy is one that
A. beats all others, regardless of the opponent's choice.
B. beats all others, given the opponent's choice.
C. is beaten by all others, regardless of the opponent's choice.
D. is beaten by all others, given the opponent's choice.
E. beats at least one other, given the opponent's choice.

13. The demand for costume jewelry has been estimated to be \( Q = -100P + 2E \), where \( E \) is the price of velvet Elvis Presley pictures. Costume jewelry and Elvis pictures are
A. substitute goods.
B. complement goods.
C. inferior goods.
D. normal goods.
E. unrelated goods.

14. The income elasticity of demand is defined as the
A. percentage change in the quantity demanded divided by the percentage change in the price level.
B. change in the quantity demanded divided by the change in per capita income.
C. percentage change in income divided by the percentage change in the quantity demanded.
D. change in per capita income divided by the change in the quantity demanded.
E. percentage change in the quantity demanded divided by the percentage change in per capita income.

15. Short-run marginal cost eventually increases with increasing output because
A. eventually economies of scale will diminish.
B. not all variable inputs increase at the same rate.
C. diseconomies of scale usually set in immediately.
D. of diseconomies of scope.
E. eventually diseconomies of scale set in.

16. Too Much Fun (TMF) sells board games for the discerning student. It estimates that its total cost of sales is \( TC = Q + 27Q^{1/3} \). At 27 units of output, TMF's marginal cost is
A. $2.
B. $29.
C. $27.
D. $30.
E. $28.

17. A firm with production located in a poor Georgia town sells toys locally for $10 each and ships the same toys to sell in a wealthy North Carolina town for $15 each. They are not price
discriminating if
A. laws in Georgia allow it.
B. laws in North Carolina allow it.
C. total advertising costs are $5 per unit.
D. total transportation costs are $5 per unit.
E. consumers in North Carolina would pay more than $15 for the toys.

18. As we move down a linear demand curve, demand becomes
A. more elastic.
B. less elastic at first and then more elastic.
C. steeper.
D. more elastic at first and then less elastic.
E. less elastic.

19. The demand for fashion watches is \( Q = 9 - 0.7P + 2I \). Assume that per capita income \( I \) is $13. At a price \( P \) of $30, the price elasticity of demand is
A. -0.66.
B. -1.0.
C. -2.0.
D. -0.5.
E. -1.5.

20. Total profit is maximized when
A. marginal profit equals average profit.
B. marginal profit equals zero.
C. average profit equals zero.
D. average profit is maximized.
E. marginal profit is greater than average profit.

21. Al's Authentic Anklettes sells manacles. Their demand and costs are given by \( Q_D = 100 - P \) and \( TC = 100 + 10Q \). The profit maximizing level of output is
A. 45 manacles.
B. 47.5 manacles.
C. 90 manacles.
D. 10 manacles.
E. no manacles.

22. Marginal cost is equal to the
A. change in total variable cost divided by the change in output.
B. total variable cost divided by the level of output.
C. price of the input divided by the average product of the variable input.
D. price of the input divided by the total product of the variable input.
E. total variable cost divided by the change in output levels.

23. The demand for a product is more inelastic the
A. more narrowly defined the product.
B. longer the time period covered.
C. lower the average income of consumers.
D. better the available substitutes.
E. poorer the available substitutes.

24. A producer refuses to sell some of one joint product. MRA is the marginal revenue for a low-demand good. If the producer were to sell all its production, what would be true of MRA?
A. MRA = demand for A.
B. MRA = 0.
C. MRA = marginal cost of A.
D. MRA < 0.
E. MRA = 1.

25. The market demand curve shows, ceteris paribus, the quantity of a good or service
A. households would sell at various prices.
B. households would buy at various outputs.
C. firms would sell at various prices.
D. firms would buy at various prices.
E. households would buy at various prices.
Short Answer.
10 Points Each. Answer 5 of the following (6 questions) and draw a large X through the question that you choose to not answer.

1. The total cost function for a company is \( TC = 450 + 3Q + 6Q^2 \), where TC is total cost and Q is output.
   A. What is the marginal cost when output = 100?
   B. What is the marginal cost when output = 200?
   C. What is the marginal cost when output = 300?

2. Suppose you take a trip down to Orlando and observe two large firms, WDW and US-IOA, both charging $5.25 for a beverage that costs about $1 to pour.
   A. Why could this be considered evidence of collusion?
   B. Assume you are working for one of the companies and draft a brief memo (on the back of this sheet) to the Visit Florida organization defending your company’s pricing practice.

3. According to the 4/19 Wall Street Journal, analysts for technology stocks are disappointed over the refusal by customers to purchase the latest mobile phones (with fancy technological features).
   A. Use a supply and demand diagram to show the actual market conditions versus expected market conditions for the latest phones.
   B. If customers begin to embrace the new phones, and the industry is competitive, show how prices still may not recover to expected levels.

4. The trend in total Pensacola employment has been captured recently with two models. The relationships are
   \[ E_t = 133.49 + 0.2235t \]
   and
   \[ E_t = 133.75 \times \exp(0.0015t) \]
   where \( t \) is a time trend (which ranges between 1 and 121).
   A. Calculate the forecast under each model for \( t=121 \) (hint: the exponent for 0.1815 is approximately 1.199).
   B. Determine which model was closer to the actual value of 155.9 for \( t=121 \).
   C. Since the last value represents Jan, 2002, briefly describe one of the missing “variations” that could account for the difference.

5. Assume that a local restaurant is looking at two properties. For one property, rent is $500,000. For the other property, rent = $0.75\times Q$ where Q is quantity of meals.
   A. For what level of Q, will the restaurant prefer fixed rent?
   B. Since the variable rent model is used on Pensacola Beach (for land rent), what type of restaurants will be attracted to Pensacola Beach?

6. Suppose you are one of two firms in an industry. Suppose the demand curve and cost
structure are given by
\[ P = 100 - Q \quad \text{and} \quad AC = \frac{2}{q} + 10 \]
where \( P \) is the price, and \( Q \) is the industry quantity. AC is average cost and \( q \) is the quantity produced by your firm.

A. Suppose you collude with the other firm to act like monopolies. How much will each of you produce? What will your profits be?

B. Assume the other producer sticks to the agreement. How does your marginal revenue compare to the industry marginal revenue (from A)?

C. Worst case scenario: if both of you refuse to collude, how high can industry quantity go?