(1 pt) 1. Which of the following combination of goods most closely fits the definition of a complement? **Circle the correct answer.**
   (a) Bounty towels and Scott towels 
   (b) Pepsi and Coca-Cola 
   (c) Spaghetti and spaghetti sauce 
   (d) Tide detergent and milk 

(1 pt) 2. If the income elasticity of a good is 0.75, then this good is said to be a **necessity**.

(1 pt) 3. If the income elasticity of a good is 1.25, then this good is said to be a **luxury**.

(2 pts) 4. Given this Engel curve for bananas,

![Engel curve diagram]

find the income elasticity between points A and B. **Show all work.**

\[
\frac{\% \Delta Q_B}{\% \Delta I} = \frac{\Delta Q_B}{\Delta I} \times \frac{I}{Q_B} = \frac{2}{\frac{55000}{3}} \times \frac{90}{9} = 1.22
\]

(1 pt) 5. Under the assumption of rationality a firm always should operate in Stage **2** of production.
6. The diagram below pertains to the quantity of snack foods produced per day by Frito Lay, using labor as an input.

(1 pt) (a) The diagram above corresponds to a/an TPP curve or production function.

(2 pts) (b) The marginal physical product between 4 and 8 hours of labor is 500 snack food products per hour. Show all work.

\[ MPP = \frac{\Delta Q}{\Delta L} = \frac{2,000}{4} = 500 \]

(1 pt) (c) What stage of production occurs between points C and D? Stage 3 mpp < 0

(1 pt) (d) At 4 hours of labor, what is the average physical product? Show all work.

\[ APP = \frac{Q}{L} = \frac{3,000}{4} = 750 \]

7. (2 pts) Which of the following is NOT a condition for perfect competition? Circle all that apply.

(a) few sellers
(b) no barriers to entry and exit
(c) homogeneous products
(d) differentiated products

8. (1 pt) Suppose that the cross-price elasticity between Tropicana and Minute Maid orange juice is 0.6. Then the respective orange juice products are said to be substitutes.

9. (2 pts) Given the cross-price elasticity of 0.6 between Tropicana and Minute Maid orange juice, if Minute Maid raises the price of its orange juice product from $2.50 to $3.00, ceteris paribus, by how much would the quantity purchased of Tropicana rise? Show all work.

\[ \% \Delta P = \left( \frac{3.00 - 2.50}{2.50} \right) \times 100 = 20\% \]

\[ \text{cross-price elasticity} = \frac{\% \Delta Q_T}{\% \Delta P} = 0.6 \]

\[ \% \Delta Q_T = (0.6)(20) = 12\% \]
10. The following information pertains to production and cost figures for a particular enterprise.

<table>
<thead>
<tr>
<th>Capital (Variable input) 200 units</th>
<th>Output 1,000 units</th>
<th>TC $15,000</th>
<th>TVC $12,000</th>
</tr>
</thead>
</table>

(1 pt) (a) What are the total fixed costs? $3,000

(1 pt) (b) What is the average variable cost? $12

(1 pt) (c) How much does this firm pay for each unit of capital, assuming capital is the only variable input? $60

(5 pts) 11. True or False. Circle the correct answer for each statement.

T or F (a) In stage 1 of production, APP > MPP.

T or F (b) The income elasticity for any inferior good is negative.

T or F (c) We expect the sign of the cross-price elasticity between breakfast cereal and milk to be negative.

T or F (d) MPP = APP when MPP is at a maximum value.

T or F (e) APP can never be negative, but MPP can be negative.

(1 pt) 12. If the own-price elasticity of demand for a product equals -0.4, then the own-price flexibility for this product is equal to \(-2.5\). \(\frac{1}{-0.4} = -2.5\)

"On my honor, as an Aggie, I have neither given nor received unauthorized aid on this announced quiz."

Student’s Signature ___________________________ Date ___________________________

Student’s Printed Name ___________________________ UIN ___________________________