

Question 3: Short**5 points**

A Point 1	State that Lucy will maximize her total utility by consuming 5 units of Good X and 4 units of Good Y.	1 point
B Point 2	Calculate Lucy's total utility of consuming 2 units of Good X and 2 units of Good Y as 88 utils and show your work. Total Utility from consuming 2 units of Good X = 20 utils + 16 utils = 36 utils Total Utility from consuming 2 units of Good Y = 28 utils + 24 utils = 52 utils Total Utility from consuming 2 units of Good X and 2 units of Good Y = 36 utils + 52 utils = 88 utils	1 point
C Point 3	(i) State that Lucy can purchase a maximum of 4 units of Good Y.	1 point
(ii) Point 4	State that Lucy's optimal consumption is 4 units of Good X and 3 units of Good Y and explain that at this combination, the marginal utility per dollar spent on the last unit of Good X is 4 utils/\$ (= 8 utils/\$2), and the marginal utility per dollar spent on the last unit of Good Y is 4 utils/\$ (= 16 utils/\$4) when Lucy spends her entire budget of \$20 (= \$2 × 4 units of Good X + \$4 × 3 units of Good Y).	1 point
D Point 5	State that goods X and Y are substitute goods and explain that the cross-price elasticity of demand between Good X and Good Y is positive. A positive cross-price elasticity indicates that an increase (a decrease) in the price of Good X will increase (decrease) the demand; therefore, the quantity demanded of a substitute good, Good Y.	1 point

Question 2: Short**5 points**

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| (a) | State that Southland has a comparative advantage in producing wheat and explain that the opportunity cost of producing one bushel of wheat in Southland is 1/2 yard of cloth, which is less than the opportunity cost of producing one bushel of wheat in Northland, which is 3 yards of cloth. | 1 point |
| (b) | Identify any specific number between 5 and 30 yards of cloth. | 1 point |
| (c) | State no and explain that Southland's opportunity cost to produce one yard of cloth is 1.5 bushels of wheat, which is greater than Northland's opportunity cost of producing cloth, which is 1/3 of a bushel of wheat. | 1 point |
| (d)(i) | State no, the market results in an inefficient allocation of resources and explain with ONE of the following: <ul style="list-style-type: none"> The negative externality causes the marginal social cost to be greater than the marginal social benefit ($MSC > MSB$) at the market equilibrium. The negative externality in production causes the marginal social cost to be greater than the marginal private cost ($MSC > MPC$) at the market equilibrium. | 1 point |
| (ii) | State that a lump-sum tax will not change the market equilibrium price and quantity in the short run. | 1 point |

Total for part (d)	2 points
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Total for question 2	5 points
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Question 3: Short**5 points**

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| (a) | Calculate the total net benefit of placing three advertisements as \$2,200 and show your work:

Total net benefit = $\$3,000 - \$800 = \$2,200$ | 1 point |
| (b) | Calculate the marginal net benefit of the third advertisement as \$500 and show your work:

Marginal net benefit = $(\$3,000 - \$2,200) - (\$800 - \$500) = \$800 - \$300 = \$500$ | 1 point |
| (c) | Identify the optimal number of advertisements as 4 and explain that the marginal net benefit of the 4 th advertisement is positive ($\$600 - \$500 = \$100$), but the marginal net benefit of the 5 th advertisement is negative ($\$400 - \$800 = -\$400$). | 1 point |
| (d) | Identify the optimal number of advertisements as 4. | 1 point |
| (e) | State that AZY Foods is operating in a monopolistically competitive market structure. | 1 point |

Total for question 3	5 points
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