Name ________________________________ **Period** ________

Ms. Foglia **Date** ______________________

AP: CHAPTER 39: CONTROL SYSTEMS IN PLANTS

1. How does light influence sprouting potatoes?

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2. Describe the steps of the signal-transduction pathway.

   a. Reception ____

   ____

   b. Transduction ____

   ____

   c. Response ____

   ____

3. What did the early experiments on photoperiodism demonstrate?

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4. What does auxin do in plant cells that cause elongation?

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5. Define apical dominance.

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6. Identify two functions of gibberellins.

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7. Identify a few plant responses to ethylene.

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8. Are all wavelengths of light equal when it comes to phototropism? Explain.

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9. What are the two forms of phytochrome and how are they switched?

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10. When do short-day plants flower?

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11. What happens when short-day plants receive flashes of light ?

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12. When do long-day plants flower?

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13. What happens when long-day plants receive flashes of light

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14. What may be a cause of root gravitropism?

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15. What is the mechanism that causes Mimosa leave close?

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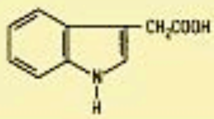
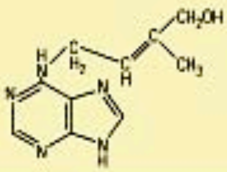
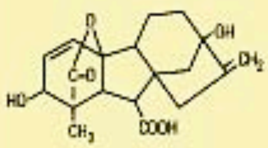
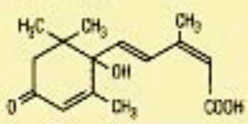
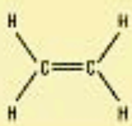
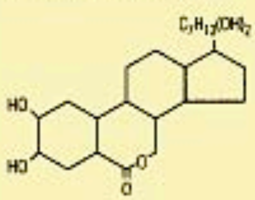
Name ______________________________ **Ms. Foglia**

Table 39.1 An Overview of Plant Hormones

Hormone	Where Produced or Found in Plant	Major Functions
Auxin (IAA) 	Embryo of seed, meristems of apical buds, young leaves	Stimulates stem elongation (low concentration only) root growth, cell differentiation, and branching; regulates development of fruit; enhances apical dominance; functions in phototropism and gravitropism.
Cytokinins (such as zeatin) 	Synthesized in roots and transported to other organs	Affect root growth and differentiation; stimulate cell division and growth; stimulate germination; delay senescence.
Gibberellins (such as GA$_3$) 	Meristems of apical buds and roots, young leaves, embryo	Promote seed and bud germination, stem elongation, and leaf growth; stimulate flowering and development of fruit; affect root growth and differentiation
Abscisic acid 	Leaves, stems, roots, green fruit	Inhibits growth; closes stomata during water stress; counteracts breaking of dormancy
Ethylene 	Tissues of ripening fruits, nodes of stems, aging leaves and flowers	Promotes fruit ripening, opposes some auxin effects; promotes or inhibits growth and development of roots, leaves, and flowers, depending on species
Brassinosteroids (such as brassinolide) 	Seeds, fruits, shoots, leaves, and floral buds	Inhibits root growth; retards leaf abscission; promotes xylem differentiation