**Photosynthesis** (p. 97 – 103)

**I. Using The Energy In Sunlight**

 **1. List the three stages of photosynthesis.**

 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **2. Where does photosynthesis occur in plant cells?** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **3. Write out the equation for photosynthesis.** *(Label your formula reactants & products)*

**II. Stage One : Absorption Of Light Energy** *(Light-Dependent)*

 **1. Define the term pigment.**

 Pigment –

 **2. Define the term chlorophyll and list two examples of chlorophyll found in plants.**

 Chlorophyll –

 *Examples* : 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **3. What two colors are mostly reflected during photosynthesis?**

 Reflected : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **4. Define the term carotenoids and identify the colors produced due to carotenoids.**

 Carotenoids –

 *Colors* : 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **5. Where are clusters of pigments located in chloroplasts?** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **6. What happens to electrons when light strikes a thylakoid?**

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 **7. How is water involved with replacing electrons leaving chlorophyll molecules?**

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 **8. What is an important end product of the 1st Stage of Photosynthesis?** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**III. Stage Two : Conversion Of Light Energy** *(Light-Dependent)*

 **1. Define the term electron transport chain.**

 Electron Transport Chain –

 **2. What is pumped into thylakoids as electrons lose energy?** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **3. As a concentration gradient forms along a thylakoid membrane, what happens to H+ ions?**

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 **4. What is the result of the H+ ions interacting with ADP?** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **5. Define the term NADPH.**

 NADPH –

 **6. How does NADPH form?**

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 **7. Why are ATP and NADPH produced during photosynthesis?**

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**IV. Stage Three : Storage Of Energy** *(Light-Independent)*

 **1. Define the term carbon dioxide fixation.**

 Carbon Dioxide Fixation –

 **2. List the four steps of the Calvin Cycle.**

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 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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 4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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 **3. What is the end product of the Calvin Cycle (and photosynthesis)?**

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