S. Roehrig Name:

SBI3C Date:

**Assignment: Plants in the Natural Environment**

**PART A: KNOWLEDGE & UNDERSTANDING [29 marks]**

*Use the textbook (Unit 4) and/or course notes to answer the following questions:*

1. What are the 4 types of plant tissue, and what is their function?

|  |  |
| --- | --- |
| Plant tissue: | Function: |
|  |  |
|  |  |
|  |  |
|  |  |

/8 KU

2. Name the two types of **meristem** found in plants, and describe the type of growth each is

 responsible for.

|  |  |
| --- | --- |
| Type of meristem: | Type of growth: |
|  |  |
|  |  |

/4 KU

3. Label the following diagram of the cross-section of a leaf:



(Source: http://www.ekcsk12.org/faculty/jbuckley/apbio/plantsystemstest.html)

/5 KU

4. Complete the table with the function of each leaf structure below:

|  |  |
| --- | --- |
| Leaf structure: | Function: |
| cuticle |  |
| mesophyll cells |  |
| stoma |  |
| guard cells |  |

/4 KU

5. Write the balanced chemical equation for photosynthesis*.*

/2 KU

6. Name and describe the 3 types of **tropisms** in plants*.*

|  |  |
| --- | --- |
| Name of tropism: | Change in plant growth in response to what? |
|  |  |
|  |  |
|  |  |

/6 KU

**PART B: COMMUNICATION [15 marks]**

*Complete the chart with the terms that match the definitions.*

*You will have to find the proper terms on your own*

|  |  |
| --- | --- |
| Term: | Definition: |
| 1. | a measure of the number and abundance of different species living in a particular ecosystem |
| 2. | a habitat dominated by a single plant species |
| 3. | a specialized plant structure containing an embryonic plant and food supply |
| 4. | a member of the kingdom Plantae that lacks a vascular system |
| 5. | a member of the kingdom Plantae that has a vascular system and does not produce seeds |
| 6. | a member of the kingdom Plantae that has a vascular system and produces naked seeds |
| 7. | a member of the kingdom Plantae that has a vascular system and produces enclosed seeds that form within flowers |
| 8. | an angiosperm that produces seeds containing embryos with one cotyledon (seed leaf) |
| 9. | an angiosperm that produces seeds containing embryos with two cotyledons (seed leaves)  |
| 10. | a structure that develops from the ovary of a pollinated angiosperm, in which the seed develops |
| 11. | vascular tissue that transports water and materials |
| 12. | vascular tissue that transports sugars and other solutes through the plant |
| 13. | a root system with a large central root and many smaller side branches |
| 14. | a root system in which large numbers of relatively equal-sized roots arise from the base of the plant immediately below the ground |
| 15. | a cell organelle found only in plant cells. It contains chlorophyll and carries out the reactions of photosynthesis. [\*\*not in Unit 4\*\*] |

/15 C

**PART C: APPLICATION [22 marks]**

1. What are the three most important food plants?

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/3 A

2. What is a "vegetable"? [1 mark] Name 2 "vegetables" that are actually fruits. [2 marks]

/3 A

3. Name 3 plant growth regulators, and briefly describe what each does*.*

|  |  |
| --- | --- |
| Plant growth regulator: | Function: |
|  |  |
|  |  |
|  |  |

/6 A

4. What is the difference between a **synthetic fertilizer** and a **natural fertilizer**? [2 marks]

 Give an example of a natural fertilizer. [1 mark]

|  |  |
| --- | --- |
| Natural Fertilizers: | Synthetic Fertilizers:  |
|  |  |
| example: |  |

/3 A

5. What are 2 reasons for banning pesticides in cities (urban environments)?

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/2 A

6. What are 4 jobs that are related to working with plants?

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/4 A

7. What is **phytoremediation**?

/1 A

**PART D: THINKING & INVESTIGATION [15 marks]**

1. What are 3 environmental factors that affect plant growth?

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/3 TI

2. Choose **one** of the environmental factors and design your own experiment to test how that factor

 affects the growth of plants. Write your design on a separate piece of paper, and make sure you

 include all of the following:

 -an introduction that describes the factor you are testing and your hypothesis

 (If...then...because...)

 -a point-form procedure for the experiment, including a list of materials and a blank

 observation chart

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Level 1(50-59%)** | **Level 2 (60-69%)** | **Level 3 (70-79%)** | **Level 4 (80-100%)** |
| **Statement of hypothesis:****/2** | Hypothesis has limited accuracy, clarity, and support. | Hypothesis has some accuracy, clarity, and support. | Hypothesis has considerable accuracy, clarity, and support. | Hypothesis is accurate, clearly stated, and supported. |
| **Experimental design:****/10** | Experimental design has limited detail and effectiveness. | Experimental design has some detail and effectiveness. | Experimental design has considerable detail and effectiveness.  | Experimental design includes detailed procedure and effectively tests the effect of the variable on the growth of bread mould.  |

/12 TI

**Knowledge & Understanding TOTAL: /29 ( %)**

**Communication TOTAL: /15 ( %)**

**Application TOTAL: /22 ( %)**

**Thinking & Investigation TOTAL: /15 ( %)**

**Last day to hand in assignment: Monday June 18, 2018**