**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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**Extra Credit Assignment (10 pts)**

The Huntington Library Conservatory

1151 Oxford Road, San Marino

(626) 405-2100

This assignment is designed to familiarize you with numerous plant adaptations in various habitat types. Give yourself plenty of time to enjoy the conservatory and the botanical gardens (call first for library hours).

**Rainforest**

1). Plants have evolved a variety of adaptations to aid in seed dispersal, pollination, and growth. For each process describe a specific adaptation that some plants have evolved to better achieve the given process.

 Seed Dispersal:

 Pollination:

 Growth:

2) Choose 5 labeled plant species in the rainforest. Name two adapted characteristics for each plant that set it apart from the other four species chosen. Also list two characteristics that the 5 plant species have in common and discuss why these characteristics are found in all of the chosen plant species.

 Species 1:

 Species 2:

 Species 3:

 Species 4

 Species 5

 Characteristics in common:

 a)

 b)

 Why?

3) By definition, what classifies a rainforest? Compare the various rain forests average rainfall to that of Los Angeles.

4) What geographic range do all rain forests have in common?

5) Plant species found in the rainforest have evolved ways to increase survival, often with the aid of forest animal species. Write down three adaptations that plants have evolved for life in the rain forest. (Can be found on the temporary information cards)

 a)

 b)

 c)

6) What are the evolutionary advantages of having large leaves in the rain forest?

7) What adaptations have plants living in the tropical dry forest evolved to survive drought conditions?

8) Over 80% of the foods in our diet originated in the tropical rainforest (www.rain-tree.com). What 4 spices have been derived from rain forest plants? Name the plant species that each spice is derived from.

a)

 b)

 c)

 d)

9) Name and describe 4 fish species found in the tropical forest.

a)

 b)

 c)

 d)

10) Many species of plant have developed a mutualistic relationship with insects. Explain the mutualistic relationship between giant water lilies and scarab beetles.

**Plant Lab**

11) List 3 adaptations plants have evolved for seed dispersal.

a)

 b)

 c)

12) What type of seeds does a tipu tree have?

13) What are three types of seeds that ride the wind?

14) Do plants eat dirt? Explain how we know.

15) Why do leaves have various textures? Explain.

16) Is green algae a plant? Why or Why not?

17) Plant species have often evolved to attract specific pollinators. What % sugar is needed to attract various pollinators?

**Cloud Forest**

18) Plants living in nutrient poor environments must have nutritional adaptations to gain essential nutrients (Campbell and Reece, 2005). List three cloud forest carnivorous plant species and describe the adaptive techniques each uses to catch and digest prey?

a)

 b)

 c)

19) Many angiosperms have evolved characteristics to attract pollinators. Describe two orchid species that have evolved distinct characteristics for attracting specific insects?

20) How have bromeliads adapted to living in the air?

21) Describe the relationship between bromeliad plants and its inhabitants?

**Bog**

22) What are the four layers of a bog, and what are they composed of?

a)

 b)

 c)

 d)

23) What are the seasons of the southeastern bog?

24) What is the artificial bog made out of?

**Critical Thinking Questions (These questions aren’t on cards)**

 25. What is the greatest threat to the rainforest ecosystem and what actions must be taken, including political, social, and environmental, to stop this threat and preserve the rainforest?

26. Describe why conserving the biodiversity of an entire ecosystem is of greater importance then preserving individual species. Provide one example seen at the Conservatory that supports this argument.