Evolution Theory Assessment

Student Name: _____ **Class:** _____

Student ID: _____ **Date:** {{DATE}}

Assessment Details

Duration: 2 hours **Total Marks:** 100

Topics Covered:

- Darwin's Theory of Evolution
- Natural Selection
- Genetic Variation
- Adaptation Mechanisms

Instructions to Students:

1. Read all questions carefully before answering.
2. Provide detailed, scientific explanations.
3. Use specific examples to support your arguments.
4. Show all reasoning and scientific thinking.
5. Manage your time carefully.

Section A: Multiple Choice [20 marks]

Question 1 **[4 marks]**

Which observation was most crucial to Darwin's development of evolutionary theory?

A) Galapagos Finch Beak Variations

B) Fossil Record Similarities

C) Geographical Distribution of Species

D) Artificial Selection in Domesticated Animals

Question 2 **[4 marks]**

Natural selection primarily operates through:

A) Random Genetic Mutations

B) Intentional Adaptation

C) Differential Reproductive Success

D) Environmental Pressure

Section B: Short Answer Questions [40 marks]

Question 3 **[10 marks]**

Explain how the concept of natural selection differs from Lamarckian inheritance. Provide specific examples to illustrate your explanation.

Question 4 **[10 marks]**

Describe three specific mechanisms of genetic variation that contribute to evolutionary adaptation.

Section C: Extended Response [40 marks]

Question 5 **[20 marks]**

Using the Galapagos Finches as a case study, critically analyze how environmental factors drive evolutionary adaptation. Your response should:

a) Describe the variations in finch beak morphology [5 marks]

b) Explain the selective pressures that led to these adaptations [7 marks]

c) Discuss the broader implications for understanding evolutionary mechanisms [8 marks]