Student Name:	The second secon
Student Number:	

UNIVERSITY OF TORONTO Faculty of Arts and Science

**26 APRIL 2011 EXAMINATION** 

EVOLUTION & ADAPTATION EEB214H1S

**Duration - 3 hours No Aids Allowed** 

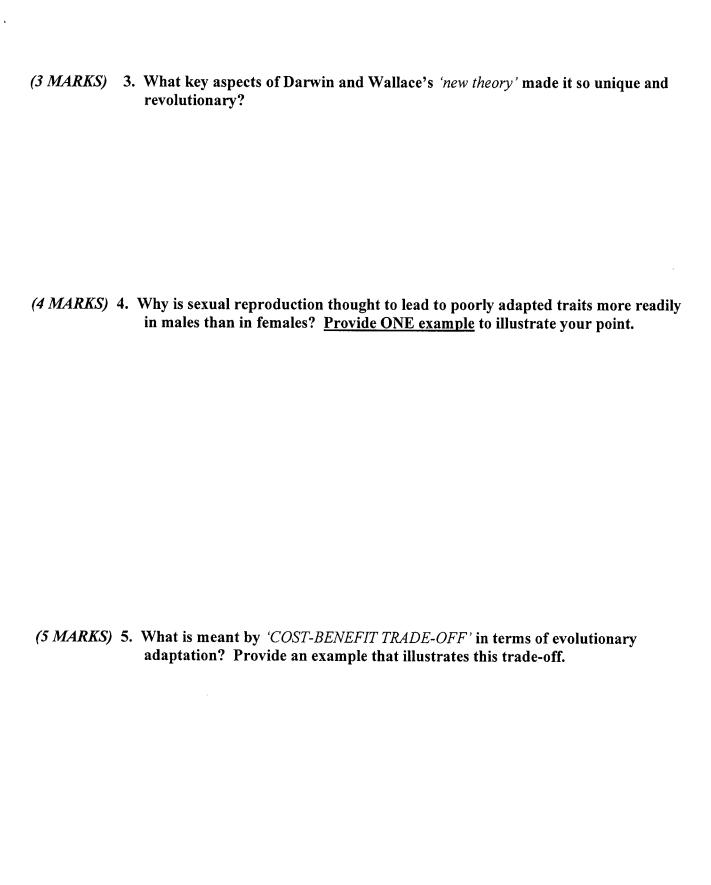
9 pages total (possible 100 marks)

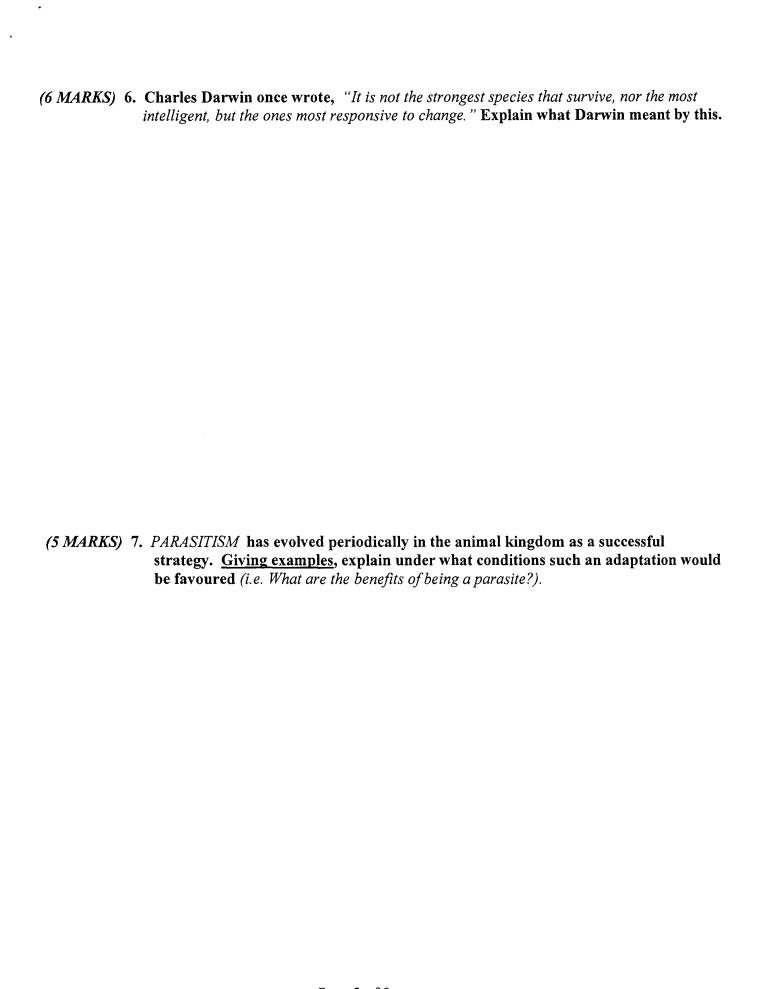
Questions CAN be Answered in Essay OR Point Form Directly on the Exam

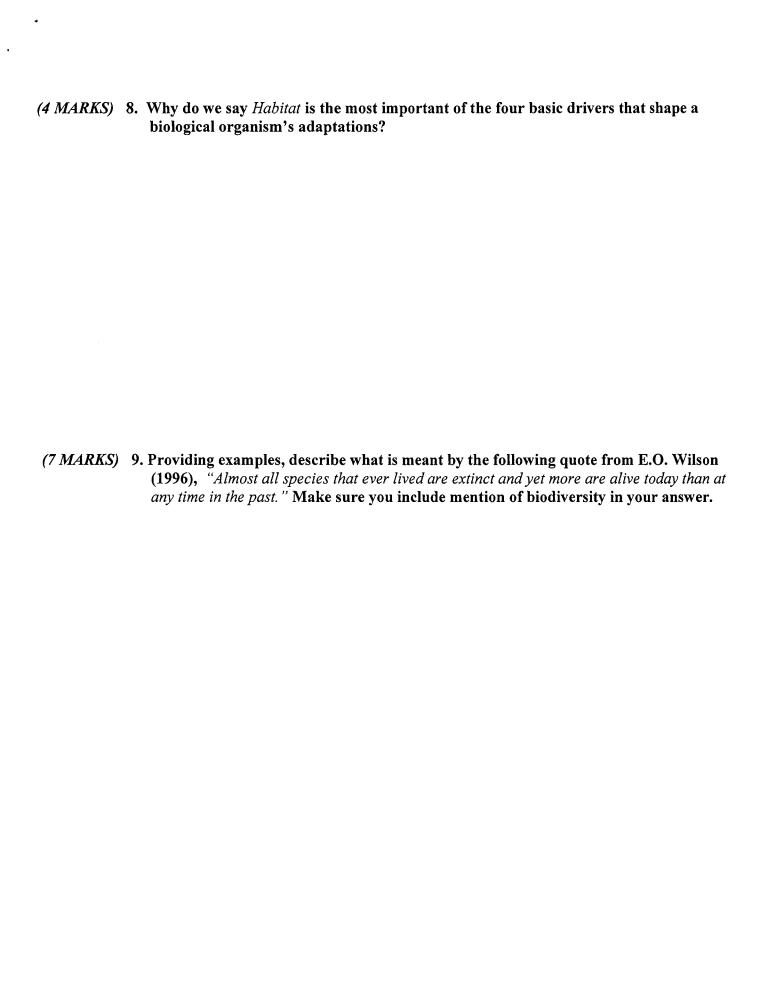
Please Use Back of Page if Necessary to Answer Questions

## Sexual selection is stronger in monogamous than polygamous mating systems. Eurcaryotic cells are thought to be an evolutionary example of symbiosis. The behaviour of crows feeding on whelks can be explained by optimal foraging theory that minimizes net energy gain. Two-thirds of flowering plants are pollinated by animal mutualists. Parasites are more likely to be specialists than generalists in terms of host specificity. (6 MARKS) 2. Match the following terms (e.g., Whales & Penguins----Convergent Evolution): Scrub Jays Habitat Destruction Zebra Mussels Mate-Guarding Extinction Camoflauge Animal Bioreactors Genetic Engineering Peppered Moths Cooperative Breeding Sperm Plug **Invasive Species**

(5 MARKS) 1. Mark the following statements either TRUE or FALSE.







## (24 MARKS) 10. Compare and contrast <u>EACH of the following PAIRS of terms</u>, providing a specific example for each term. Use the back of the page as necessary.

- a) Plant Feeders vs Animal Feeders (6 MARKS)
- b) Reproductive Investment vs Mating Effort (6 MARKS)
- c) Co-Evolution vs Convergent Evolution (6 MARKS)
- d) Inter-Specific vs Intra-Specific (6 MARKS)

(8 MARKS)	11.	A number of scientific theories and/or hypotheses were presented in this course that provide evolutionary explanations for adaptation in animals. Describe ONLY TWO of these hypotheses/theories using an example to illustrate each.
(4 MARKS)	) 12	2. What is meant by the term <i>Phenotype</i> ? Why is it important for understanding evolution in the biological world?

(9 MARKS) 13. Evolution has led to two biological organisms sharing or cooperating in attaining one or more of their four life goals termed either: MUTUALISM or SOCIALITY.

<u>Choose ONLY ONE</u> of these two and with an example, discuss (point form or essay) in terms of adaptations that have arisen in morphology, physiology, and/or behaviour that enable this unique relationship.

- (10 MARKS) 14. Answer <u>ONLY ONE</u> of the following questions in essay or point form. Use the back of this page if necessary.
  - a) In what way have we humans become 'Agents of Selection' in the evolution of the biological world? Use examples where possible to explain your answer.

OR

b) Outline the steps and changing concepts in the development of the 'Theory of Evolution by Natural Selection' providing both the chronological highlights and the evidence that was used to develop it.