



## FACULTY OF SCIENCE

### DEPARTMENT OF ZOOLOGY

<b>MODULE</b>	<b>NATURE CONSERVATION (ZOO 0057)</b>
<b>CAMPUS</b>	<b>APK</b>
<b>EXAM</b>	<b>NOVEMBER EXAM 2015</b>

**DATE: 13 NOVEMBER**

**SESSION: 8:30**

**ASSESSOR(S)**

**Prof PR Teske**

**INTERNAL MODERATOR**

**Prof BJ van Vuuren**

**EXTERNAL MODERATOR**

**Prof P King**

**DURATION: 1 HOUR**

**MARKS: 50**

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**NUMBER OF PAGES: 2**

**INSTRUCTIONS: Answer all questions and write legibly.**

## **QUESTION 1**

**Provide brief definitions of the following terms:**

- 1.1 Center of accumulation hypothesis [2]
- 1.2 Center of overlap hypothesis [2]
- 1.3 Eastern Pacific barrier [2]
- 1.4 Disruptive selection [2]
- 1.5 Vicariance [2]
- 1.6 Founder effect speciation [2]
- 1.7 Parapatric speciation [2]

## **QUESTION 2** [8]

Critically assess the idea that the evolutionary placement of a flying group of birds (the Tinnamous) within the phylogeny of the flightless ratites challenges the hypothesis that the presence of ratites on different continents is explained by the break-up of Gondwanaland.

## **QUESTION 3**

Explain why homoploid hybrids are unlikely to establish themselves successfully as new species, and discuss what factors improve their chances of undergoing speciation. [10]

## **QUESTION 4** [10]

When present-day rivers and lakes formed at the beginning of Holocene, independent colonisation events of the new freshwater habitats by marine sticklebacks occurred in large numbers. This suggests that similar physiological adaptations must have evolved independently multiple times within a relatively short period of time. Explain how such rapid parallel evolution was possible.

## **QUESTION 5**

Describe how climate change can result in speciation in a) terrestrial species and b) marine species. In each case, briefly discuss two examples. [8]

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