

**UNIVERSITY OF KWAZULU-NATAL – DURBAN CENTRE
EXAMINATIONS NOVEMBER 2011**

**SCHOOL : ENVIRONMENTAL SCIENCES
LEVEL : HONOURS
MODULE : BIOGEOGRAPHY OF INVASIVE SPECIES
CODE : ENVS708**

DURATION : 3 HOURS

TOTAL MARKS : 300

INTERNAL EXAMINER: PROF. S. PROCHES

EXTERNAL EXAMINER: PROF. S. GRAB, UNIVERSITY OF WITWATERSRAND

INSTRUCTIONS: Answer FOUR questions: TWO from Section A and both from Section B

SECTION A

1. Discuss the enemy release hypothesis (stating that alien species are likely to become invasive because of reduced predation) and Darwin's naturalisation hypothesis (stating that alien species without indigenous relatives are likely to become invasive due to reduced competition), and contrast these to the biotic resistance hypothesis (stating that indigenous species are actually likely to prevent alien species from becoming invasive, as these are not prepared to resist their predation/competition). In your answer, discuss what the merits of these two views are, which is better supported by data, and specify the types of data which are more likely to support each view. (100)

2. Discuss the various ways of studying biological invasions, with a focus on the differences between the "invasiveness" approach (species-centred) and the "invasibility" approach (area-centred). In your answer, also elaborate how these reflect the differences between biological and geographical/environmental methodology and thinking. (100)

3. Write an essay in which you compare natural and human-assisted invasions. In your answer, provide examples of natural invasions, from extreme, realm-level cases to minor range fluctuations. In addition, address the following questions in your essay: How do these compare to human-assisted invasions in terms of frequency and distance? How can we assess the rate of natural invasions? How can we assess the origin of invasive lineages, in both natural and human-assisted invasions? (100)

SECTION B

4. Name twenty invasive species belonging to animal and plant lineages as distinct as possible. (50)

5. Name ten invasive plants from the Durban area, and in each case mention at least two of the following: their origin, pollinators, seed dispersers, habitat preferences. (50)