

2002 HIGHER SCHOOL CERTIFICATE EXAMINATION
Biology

Section I – Part B (continued)

Question 25 (4 marks) Marks

(a) Define the concept of *punctuated equilibrium* in evolution. 1

Punctuated equilibrium states that a sudden change in the environment causes sudden changes in the species.

(b) How does punctuated equilibrium differ from the process proposed by Darwin? 3

Darwin's process of convergent & divergent evolution states that organisms gradually evolve to suit their particular environmental niches. His theory proposes this is a slow process & relies on the "survival of the fittest theory" (those within the population with the desired characteristics will survive & reproduce, the others will die). However punctuated equilibrium proposes there must be a sudden change in the organisms as they adapt to their new conditions, in order for them to survive.

The punctuated equilibrium theory explains the large gaps in fossil records.