**Year 11 Biology ATAR – Unit 1**

**Task 2 – Part B: Population Dynamics**

**In-class questions for Task 3: Extended response**

Use your knowledge of population dynamics and your research into woylie population changes to answer the following questions.

1. Describe **four (4)** factors that could affect the population size and distribution of woylies. (4 marks)

2. Explain how **two (2)** activities carried out by woylies help to keep the woodlands healthy and productive. (4 marks)

3. The following graph shows the number of woylies captured at eight different sites in the southwest of WA.



[Graph from: Wayne, A et al. (2008). *Woylie trap success rates in Perup*. Retrieved 2008 from Science division. Department of Conservation and Environment [www.dec.wa.gov.au/component/docman/doc\_download/3358/1](http://www.dec.wa.gov.au/component/docman/doc_download/3358/1).]

(a) Describe the trend in capture rates of woylies between 1974 and 1996. Use data to support your answer. (2 marks)

(b) Suggest **two (2)** reasons for this trend. (2 marks)

(c) Numerous hypotheses have been suggested by scientists to account for the decline in capture rates since 2001–2003. Some of these hypotheses have been discounted by evidence collected by the scientists.

(i) Explain how **two (2)** hypotheses have been discounted based on the evidence provided. (2 marks)

(ii) Explain **two (2)** hypotheses that are still being considered by scientists. (2 marks)

(iii) Which hypothesis is considered the most likely cause for the decline in the population of woylies? Explain why. (2 marks)

(d) Suggest **two (2)** reasons for the variation between the sites when the populations began to decline. (2 marks)