**Yr. 12 ATAR Human Biology ATHBY**

**Task 9: Extended Response**

**Conditions**

Time for task:

**Part A:** You have one week to research the topic and complete notes. You **may not** use these notes for Part B.

**Part B:** 30 minutes for in class validation – examination-style extended answer question.

**Task weighting: 4 %**

**Part B: In-class assessment 20 marks**

Answer each part of the following question on the line paper provided.

Responses could include clearly labelled tables and graphs; clearly labelled diagrams with explanatory notes; lists of points with linking sentences and annotated flow diagrams with introductory notes.

There are many diseases that affect the ability to breathe normally. One of these is cystic fibrosis. This is a genetic disease, one symptom of which is excess mucous in the lungs that causes breathing difficulties. Recently there has been much discussion and trialling of treatments involving gene therapy and cell replacement therapy for cystic fibrosis. A combined gene and cell replacement therapy strategy for treatment is also being explored.

b How could gene therapy and cell replacement therapy be combined as a treatment?

(5 marks)

c Outline the biotechnological techniques and steps required to develop and implement a particular gene therapy treatment. (15 marks)