

Cork Institute of Technology

Higher Certificate in Science in Applied Biology – Award

(NFQ – Level 6)

Autumn 2006

Cell Biology

(Time: 2 Hours)

Instructions

Answer Question 1 (compulsory)
and two others from Section A.

Examiners: Dr. H O'Shea
Dr. T. Beresford

Use separate answer books for each Section.

- Q1. (i) Write a brief note on the use of the haemocytometer.
- (ii) You have counted cells using a haemocytometer and have a total of 20 cells in 16 squares. In order to obtain this count, you diluted the cells by a factor of 10. The conversion factor for your counting chamber is 10^4 . The total volume of cell suspension is 30 mls.
- Calculate:
- (a) The number of cells per ml.
- (b) The total number of cells in the cell suspension.
- (iii) Write notes on cell culture.
- (iv) What are Tumour Suppressor Genes ?
- (v) Describe, using a diagram, how cAMP acts as a second messenger in a cell.
- (vi) Outline, using a diagram, the five-kingdom system of classification.
- (vii) Describe the origin of the first cells.
- (viii) Discuss general control measures against HIV infection.
- (ix) Why are parasitic diseases important?
- (x) What is PCR?

(Question 1 = 20 marks)

Section A - (Cell Biology)

Answer at least two questions from this section. Each question carries 25 marks.

- Q2. Discuss, with the aid of diagrams, Immunoglobulin molecules.
- Q3. Write an essay on Cancer.
- Q4. Discuss, using examples, parasitic diseases.