

**OCR**

**A Level**

# **A Level Biology**

**Biotechnology Cloning  
Questions**

Name:

**M M E**

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**Total Marks: /20**

## Biotechnology – Cloning

1. Cloning is the creation of an organism that is genetically identical to the original organism used. Cloning can be carried out on plant, animal and bacterial cells and has many uses in science, medicine and commercial production.

Cloning occurs naturally in plants, however exploitation of the knowledge of how plants grow and develop has allowed the development of artificial propagation as an efficient way to increase plant numbers.

- a) One of these techniques is micropropagation.
  - i) Which plant tissues are most commonly used in micropropagation and why? (2 marks)
  - ii) What should the plant tissue be treated with to ensure growth? (2 mark)
  - iii) Why is this process performed in a laboratory or greenhouse? (2 marks)
  - iv) Discuss some of the advantages and disadvantages of using tissue culture to mass produce plants. (6 marks)

2. Cloning occurs naturally in animals, however in recent years much scientific research has gone into developing techniques for artificial cloning in animals.

- a)
  - i) How does cloning naturally occur in animals? (1 mark)
- b) Therapeutic cloning is a process that can be used as the first step of reproductive cloning. This process is also called Somatic Cell Nuclear Transfer (SCNT)

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- i) Explain the process of creating an organism using SCNT?  
(5 marks)
  
- ii) The use of SCNT to create artificial clones has many advantages and disadvantages. Identify one of each. (2 marks)