1 Describe the stages in the production of cloned mammals such as Dolly the sheep.

(5)

(Total for Question = 5 marks)

2 The photograph shows a mouflon sheep. The wool of this sheep is very valuable.



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This breed of sheep is only found in small numbers on some Mediterranean islands. Scientists hope to increase the population of mouflon sheep using cloning.

Describe the steps that need to be taken to clone mouflon sheep.

(5)

(Total for Question = 5 marks)

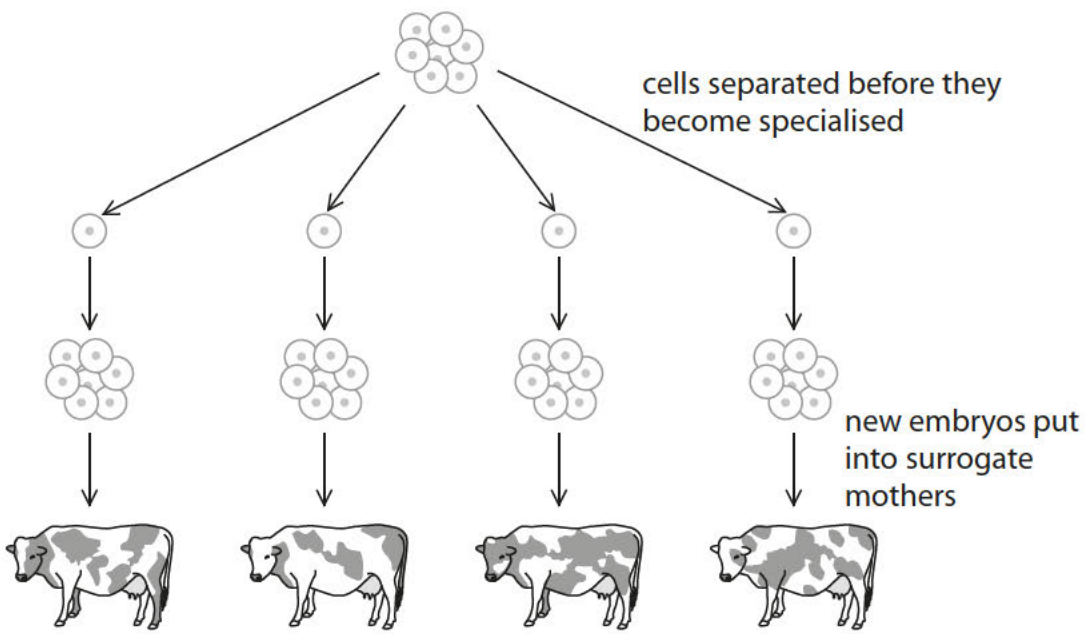
3 Farmers have used selective breeding to produce cows that give high milk yields.

(a) Describe how selective breeding can be used to produce cattle that give high milk yields.

(3)

(b) The diagram shows a different way to obtain cows that produce high milk yields. The process is called embryo cloning.

In this process individual cells from an embryo known to have the potential to become a high milk yielding cow are separated before they become specialised. Each separated cell is then allowed to develop into a new embryo. These new embryos are then put into surrogate mothers.



(i) Where in the body of the surrogate mothers do the new embryos develop?

(1)

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(ii) Suggest three advantages of producing cows with desirable characteristics using embryo cloning rather than using selective breeding.

(3)

1 .....

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2 .....

.....

3 .....

.....

(c) Explain what is meant by the term **clone**.

(2)

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.....

(d) Name the type of cell division that produces an embryo from an individual cell.

(1)

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(Total for Question = 10 marks)