

1. Jean grows geranium plants. Her favourite plant has purple flowers.

She takes a cutting from her favourite plant.

After 10 days, roots start to develop.

Explain why Jean takes a cutting from the geranium and does not grow the plant from a seed.

[3]

2. This question is about reproduction.

Bacteria, plants and some animals can reproduce **asexually**.
Which of the statements about asexual reproduction are true?
Put ticks (✓) in the boxes next to the correct statements.

- Only female individuals are produced.
- The individuals produced are clones.
- Mutation is always involved.
- The individuals are produced from a sperm and an egg.
- The majority of individuals produced are infertile.
- The individuals produced have identical genes.
- Two parents are always involved.

[2]

3. Sea anemones can reproduce asexually.

Give **one** advantage and **one** disadvantage of this method of reproduction.

Advantage

Disadvantage

.....

[2]

END OF QUESTION PAPER

Question		Answer/Indicative content	Marks	Guidance
1	a	<p>idea that colour / flower will be the same / ORA for seeds;</p> <p>ref. to clone / genetically identical; ORA</p> <p>taking a cutting is a faster process / seeds would take longer to grow into a plant;</p>	3	<p>Ignore cost</p> <p>Examiner's Comments</p> <p>??The majority of higher level candidates obtained one or two marks for this item. The item overlapped with an item on the foundation paper. Most correctly stated that the cuttings were clones or genetically identical copies of the parent/stock plant and referred to the colour of the flowers produced by the products i.e. purple. The speed of the process was generally not considered by many of the candidates. A common error appeared when candidates stated that the cuttings were clones but then repeated this feature by noting that the products generated by seeds were, effectively, not clones. This type of response could not obtain two marks for this feature. Some candidates erroneously introduced the idea of cost and said that taking cuttings is cheaper.</p>
		Total	3	
2		<p>Only female individuals are produced. <input type="checkbox"/></p> <p>The individuals produced are clones. <input checked="" type="checkbox"/></p> <p>Mutation is always involved. <input type="checkbox"/></p> <p>The individuals are produced from a sperm and an egg. <input type="checkbox"/></p> <p>The majority of individuals produced are infertile. <input type="checkbox"/></p> <p>The individuals produced have identical genes. <input checked="" type="checkbox"/></p> <p>Two parents are always involved. <input type="checkbox"/></p>	2	<p>minus 1 mark for each additional incorrect response</p> <p>Examiner's Comments</p> <p>Most candidates scored both marks on this question, with the majority of the remainder scoring at least one mark. It proved to be an accessible start to the paper whilst at the same time differentiating between the weakest and more able candidates.</p>
		Total	2	
3		<p>Advantage: (can be) fast / no need to find a mate ✓</p> <p>Disadvantage: lack of genetic diversity / are all genetically identical ✓</p>	2	<p>MP2 ALLOW are clones</p> <p>DO NOT ALLOW are all identical</p>
		Total	2	