Reproduction

Q:1 The photographs show a zorse and its parents, a zebra and a horse.

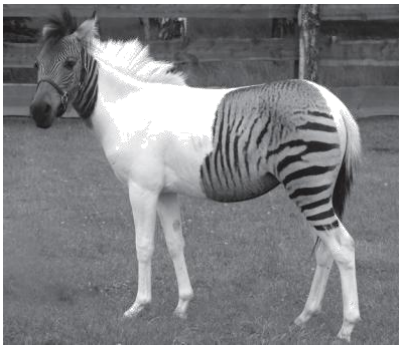
Horse

×

Zebra

↓

Zorse



(a) Draw a ring around the correct answer to complete the sentence.

The zorse was produced by

cloning
asexual reproduction
sexual reproduction

.

(1 mark)

(b) Explain the appearance of the zorse.

Use both words from the box in your explanation.

gametes	genes

(3 marks)

Q:2 Kangaroos have brown coats. The two parent kangaroos in the photograph produced a baby kangaroo with a white coat.

(a) Use words from the box to complete the sentences.

Asexual	characteristic	chromosome	mutation	nucleus	sexual

The baby kangaroo was produced by _____ reproduction.

The coat colour of the adult kangaroo is a _____

The different coat colour of the baby kangaroo is the result of a

_____ of a gene.

The gene is found on a thread-like structure called a _____

(4 marks)

Q:3 (a) Animal breeders use sexual reproduction to produce new strains of animals.

How does sexual reproduction produce variation?

_____

_____

_____

_____

(2 marks)

(b) A salmon is a type of fish.

Scientists have created a GM (genetically modified) 'super' salmon.

The scientists transferred a gene from a fish called a pout into a salmon. The gene increases the secretion of growth hormone in the salmon. The GM salmon grows much faster than an ordinary salmon, reaching market size up to one year earlier. Many more GM salmon will be grown in fish farms.

(b) (i) Describe how a gene can be transferred from a pout into a salmon.

_____

_____

_____

_____

_____

_____ **(3 marks)**

(b) (ii) The government might not allow the production of GM salmon.

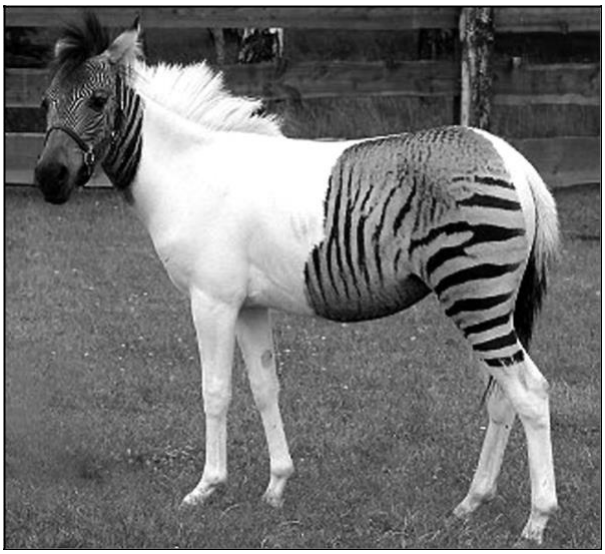
Suggest one reason why.

_____

_____

(1 mark)

Q:4 The photograph shows a zorse.



A zorse is a cross between a male zebra and a female horse.

The zorse has characteristics of both parents.

(a) The zorse was produced by sexual reproduction.

(a) (i) What is sexual reproduction?

_____

_____

(1 mark)

(a) (ii) The zorse has characteristics of a zebra and a horse.

Why?

_____

_____

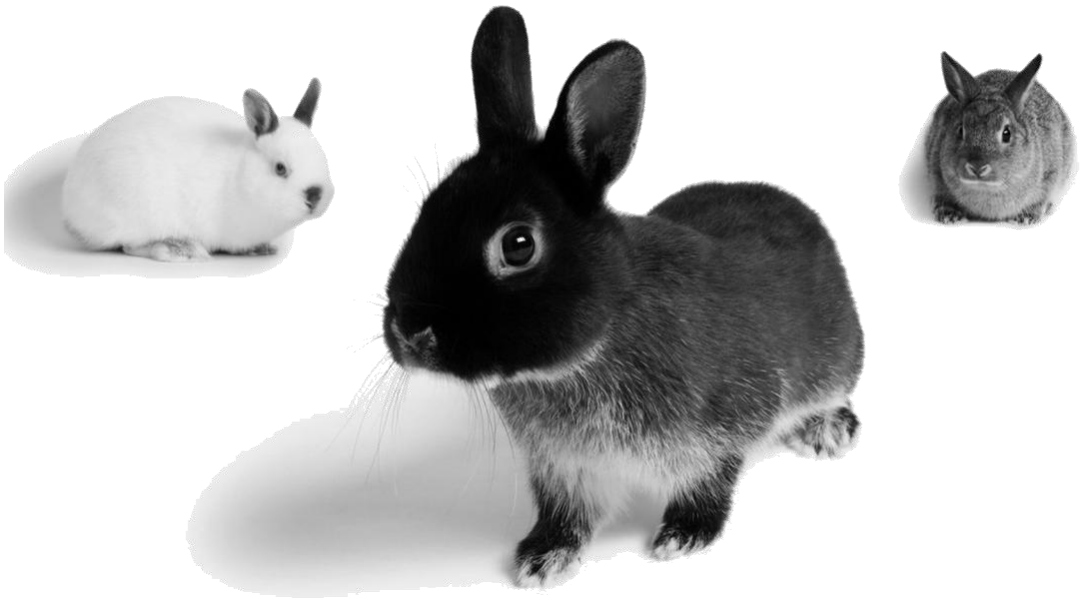
_____

_____

(2 marks)

Q:5 We breed animals with the characteristics that we prefer.

(a) The photograph shows a rabbit with some of its babies.



Use words from the box to complete the sentences about inheritance in rabbits.

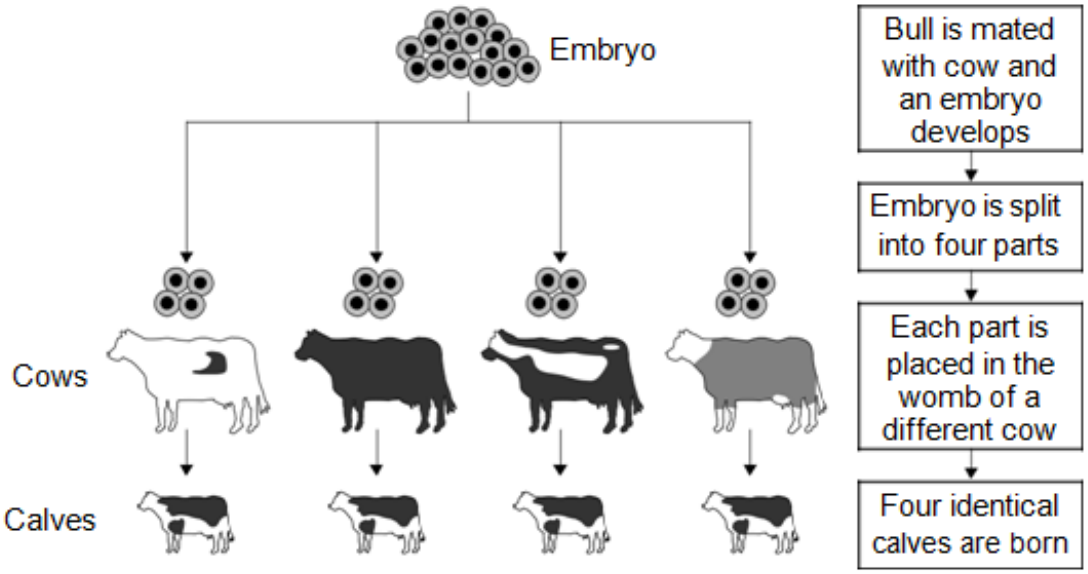
characteristic	chromosome	gene	gamete

(a) (i) The colour of a rabbit's fur is known as a _____ **(1 mark).**

(a) (ii) This colour is controlled by a _____ **(1 mark).**

(a) (iii) Each sex cell of a rabbit is known as a _____ **(1 mark).**

(b) The diagram shows one way of producing calves.



Use words from the box to complete the sentences.

asexual clones	cuttings	gametes	genetic sexual

A bull was mated with a cow.

This is _____ reproduction.

The embryo produced was split into four parts.

The calves in the diagram have identical genetic information.

This is because the calves were produced by _____ reproduction.

The identical calves are known as _____

(3 marks)

Q:6 Organisms can be produced by asexual reproduction and by sexual reproduction.

(a) Give two differences between asexual reproduction and sexual reproduction.

1 _____

_____

2 _____

_____

(2 marks)

(b) Adult cell cloning is a type of asexual reproduction.

Explain why.

_____

_____

_____

_____

(2 marks)

Q:7 A child saved apple seeds from an apple she ate. She planted the seeds in the garden. A few years later the apple trees she had grown produced apples.

(a) The apples from the new trees did not taste like the original apple.

Explain why.

_____

_____

_____

_____

_____

(2 marks)

(b) (i) Apple trees can be reproduced so that the apples from the new trees will taste the same as the apples from the parent trees.

Give one method used to reproduce apple trees in this way.

_____

_____

(1 mark)

(b) (ii) Explain why the method you have suggested in part (b)(i) will produce apples that taste the same as the apples from the parent trees.

_____

_____

_____

_____

_____

(2 marks)

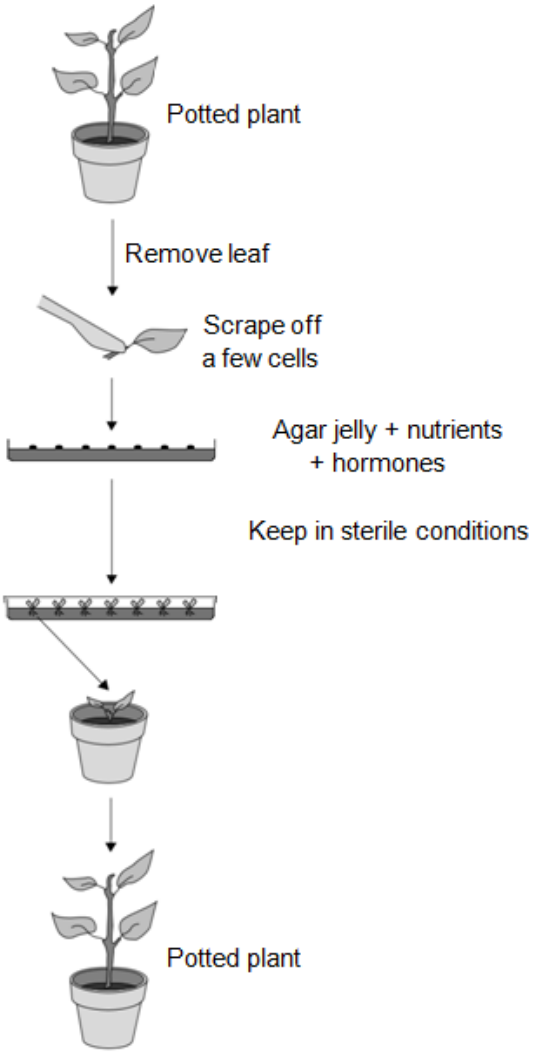
Q:8 Plant hormones are used in horticulture.

(a) Name one plant hormone.

_____

(1 mark)

(b) The diagram shows how new plants are produced using tissue culture.



(b) (i) Tissue culture is a type of asexual reproduction.

Give the main features of asexual reproduction.

_____

_____

_____

_____

_____

_____

(3 marks)

(b) (ii) Another method of producing new plants is by taking cuttings.

Suggest one advantage of using tissue culture and not using cuttings to produce plants.

_____

_____

_____

(1 mark)

Q:9 The photographs show two breeds of cow.

Friesian cow

Jersey cow

In parts (a) and (b) draw a ring around the correct answer to complete each sentence.

(a) Cows produce their young (calves) by

asexual reproduction.
cloning.
sexual reproduction.

(1 mark)

(b) Cows and their calves have many similar characteristics.

(b) (i) The information for characteristics is carried by

clones.
embryos.
genes.

(1 mark)

(b) (ii) The information for characteristics is passed to the next generation in cells

called

body cells.
gametes.
neurones.

(1 mark)

(c) Friesian and Jersey cows can both be used for meat or to produce milk.

The information shows features of Friesian and Jersey cows.

Friesian cows	Jersey cows
Body mass up to 600 kg	Body mass up to 400 kg
Milk contains 3.4% protein	Milk contains 3.8% protein
Can be milked for 325 days after giving birth	Can be milked for 250 days after giving birth
Produce no milk for 55 days before having a calf	Produce no milk for 45 days before having a calf
Produce > 30 litres of milk per day	Produce < 30 litres of milk per day

Use only the information above to answer these questions.

In your answers you must make comparisons between the two breeds of cow.

(c) (i) Give two advantages of a farmer keeping Friesian cows and not Jersey cows.

1 _____

_____

2 _____

_____

(2 marks)

(c) (ii) Give two advantages of a farmer keeping Jersey cows and not Friesian cows.

1 _____

_____

2 _____

_____

(2 marks)

(d) Cow's milk is different from human milk. Cow's milk should not be given to young human babies.

Scientists in China have genetically engineered cows to produce human milk.

Milk from these cows can be fed to young human babies.

(d) (i) What is genetic engineering?

Tick (☒) one box.

Genes from one organism are transferred to a different organism ☐

Cells are separated from an embryo and are transferred to host mothers ☐

The nucleus from a body cell is transferred to an egg cell ☐

(1 mark)

(d) (ii) Some people are worried about using milk from genetically engineered cows, to feed human babies.

Give one reason why.

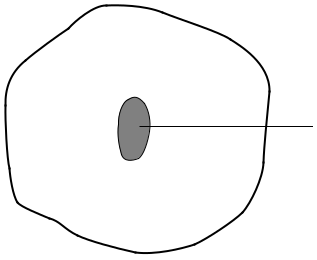
_____

_____

(1 mark)

Q:10 Figure 1 shows a cell.

Figure 1



Nucleus

(a) Draw a ring around the correct answer to complete each sentence.

(a) (i) In the nucleus of a cell, genes are part of

chromosomes.
membranes.
receptors.

[1 mark]

(a) (ii) Different genes control different

characteristics
gametes
nuclei

of an organism.

[1 mark]

(a) (iii) Studying the similarities and differences between organisms allows us to

classify
clone
grow

the organisms.

[1 mark]

(b) Complete the following sentence.

Living things can be grouped into animals, microorganisms and _____

[1 mark]

TOTAL MARKS=50