1.4 Reproduction and Inheritance: 10-minute Pack

Calculator allowed · about 10 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A student wants to test whether watering frequency affects the number of flowers on a bean plant. Identify one variable the student should keep the same to make the test fair and explain why keeping it the same is important.

(3)

2 Explain how both mutations and environmental factors can influence variation in a population. Give one example for a mutation and one example for an environmental factor.

(5)

3 A student writes: "Sexual reproduction usually involves two parents and makes offspring that are genetically different." State whether both parts of this sentence are true or false and correct any part that is false.

(2)

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Mark scheme · 1.4 Reproduction and Inheritance: 10-minute Pack

Question 1

identifies a correct control variable e.g. light level, pot size, plant variety, soil type, or temperature	M1
explains that keeping it constant prevents it affecting the number of flowers so the effect of watering can be isolated	A1
gives an example reason such as more light could increase flowering so it must be the same between groups	B1

Question 2

states that mutation is a change in DNA that can create new alleles	M1
gives an example mutation effect, e.g. a mutation causing albinism or altered coat colour in animals	A1
states that environmental factors change the way genes are expressed or affect phenotype without changing DNA	M1
gives an example environmental effect, e.g. nutrition affecting height or sunlight affecting leaf size	A1
links both to population variation by saying these create differences between individuals and can affect survival/reproduction	A1

Question 3

first part true: sexual reproduction usually involves two parents (two gametes from two parents), cao	B1
second part true: offspring are usually genetically different from their parents, leading to variation, cao	B1

Answer: **Both parts true; sexual reproduction usually involves two parents and produces offspring that are genetically different.**

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