

## Variation and selection – 2021 IGCSE 0610

### 1. March/2021/Paper\_12/No.34

Foxes are mammals. The table shows adaptations of four different species of fox.

Which fox is best adapted to live in a hot dry desert region?

	behaviour	ear size	fur colour	daily volume of urine produced
<b>A</b>	mainly active in the day	very small	white	large
<b>B</b>	mainly active at night	very large	pale brown	small
<b>C</b>	mainly active at night	small	dark brown	large
<b>D</b>	mainly active in the day	large	dark grey	small

### 2. March/2021/Paper\_22/No.35

A man heterozygous for the sickle cell anaemia allele,  $Hb^S Hb^A$ , has children with a woman who is homozygous for the normal haemoglobin allele,  $Hb^A Hb^A$ .

What is the probability that the first child will be resistant to malaria?

- A** 0.125      **B** 0.25      **C** 0.5      **D** 0.75

### 3. March/2021/Paper\_22/No.36

Which leaf feature is an adaptation of xerophytes to their environment?

- A** hairs surrounding stomata  
**B** large internal hollow spaces  
**C** large numbers of stomata  
**D** thin cuticle on both surfaces

### 4. June/2021/Paper\_12/No.35

The diagram shows some of the stages involved in natural selection in wild rabbits.



Which statement is missing from box Z?

- A** competition between rabbits for limited resources  
**B** passing on of alleles to the next generation of young rabbits  
**C** production of limited numbers of young rabbits  
**D** selection by humans of rabbits with desirable characteristics

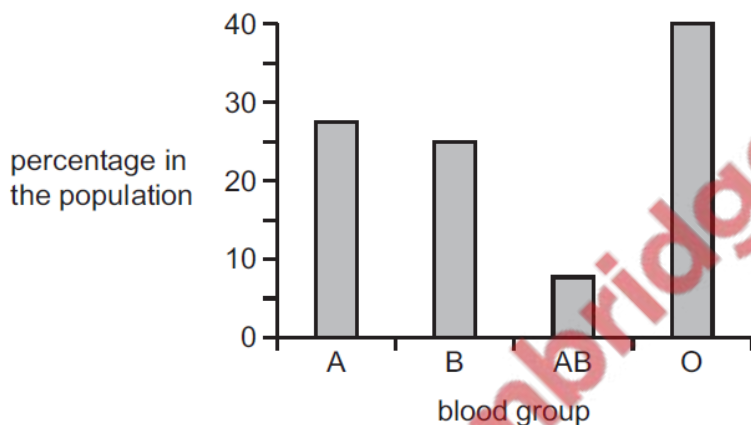
5. June/2021/Paper\_13/No.35

What is an adaptive feature of an organism?

- A any feature that is not changed by the environment
- B any inherited feature that helps an organism to survive and reproduce
- C any feature that shows discontinuous variation
- D any inherited feature that an organism has

6. June/2021/Paper\_21/No.35

The graph shows the percentage of different blood groups in a human population.



Which type of variation is shown by human blood groups?

- A continuous variation caused by genetic and environmental factors
- B continuous variation caused by genetic factors only
- C discontinuous variation caused by genetic and environmental factors
- D discontinuous variation caused by genetic factors only

7. June/2021/Paper\_21/No.36

New strains of the crop plant wheat can be produced by cross-breeding disease resistant plants with those that give high yields of grain.

What is this an example of?

- A natural selection
- B artificial selection
- C genetic engineering
- D asexual reproduction

8. June/2021/Paper\_22/No.36

What occurs as a result of artificial selection?

- A antibiotic resistance in bacteria
- B disease resistant crops
- C presence of roots in cactus plants
- D sickle cell anaemia

9. June/2021/Paper\_23/No.35

What is a correct description of a gene mutation?

- A a duplicate copy of DNA
- B a change in the base sequence of DNA
- C an increase in the number of chromosomes
- D a phenotypic variation

