

**Inheritance – 2021 O Level 5090****1. Nov/2021/Paper\_11/No.38**

One gene has two codominant alleles,  $A^E$  and  $A^F$ , and one recessive allele,  $A^G$ .

How many different genotypes and phenotypes are possible?

	genotypes	phenotypes
<b>A</b>	3	3
<b>B</b>	4	6
<b>C</b>	6	4
<b>D</b>	6	6

**2. Nov/2021/Paper\_11/No.39**

What is a result of natural selection?

- A** dogs that are friendly to humans
- B** grapes that contain no seeds
- C** mosquitoes that are resistant to insecticides
- D** onion crops that have a pleasant taste

**3. Nov/2021/Paper\_12/No.37**

What is an example of discontinuous variation in humans?

- A** height
- B** blood group
- C** hair colour
- D** mass

**4. Nov/2021/Paper\_12/No.38**

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**6. Nov/2021/Paper\_12/No.40**

During the division of a nucleus by meiosis, changes can happen that produce a gamete with an abnormal number of genes or chromosomes.

Which change might produce a gamete that can result in a child having Down's syndrome?

- A** a gamete with one extra chromosome
- B** a gamete that lacks one gene
- C** a gamete that lacks one chromosome
- D** a gamete with one extra gene

**7. Jun/2021/Paper\_11/No.37**

Chromosomes, DNA molecules and genes are pieces of inherited material with different sizes.

Which statement describes the relationship between these pieces of inherited material?

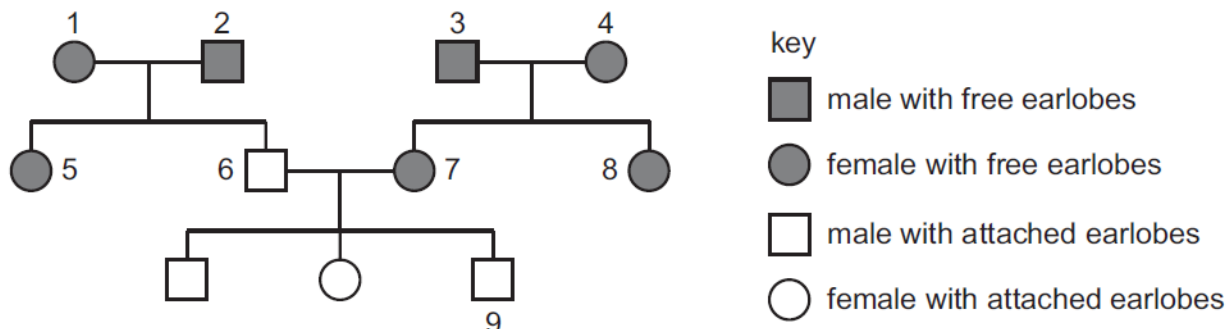
- A** A chromosome is larger than a gene.
- B** A gene is larger than a chromosome.
- C** Multiple chromosomes make up a DNA molecule.
- D** Multiple DNA molecules make up a gene.

## 8. Jun/2021/Paper\_11/No.38

Earlobes can either be attached to the cheek or be 'free' (unattached). This characteristic is controlled by a single gene.

The allele for attached earlobes is recessive.

The diagram shows the inheritance of attached earlobes in one family.



Which two individuals **must** be heterozygous for earlobe attachment?

- A 1 and 7      B 3 and 4      C 5 and 8      D 6 and 9

## 9. Jun/2021/Paper\_11/No.39

Which statements about natural selection are correct?

	natural selection can lead to better adapted species surviving	natural selection can lead to extinction of a species	natural selection can lead to gene mutations occurring
A	true	true	true
B	true	true	false
C	true	false	true
D	false	true	true

## 10. Jun/2021/Paper\_12/No.37

Which sex chromosomes are present in every sperm cell?

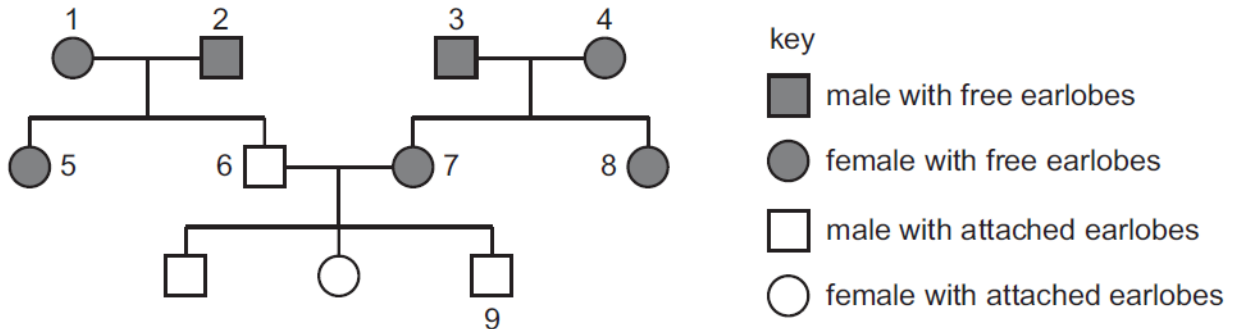
- A X chromosome only  
 B Y chromosome only  
 C X or Y chromosome only  
 D X and Y chromosomes

## 11. Jun/2021/Paper\_12/No.38

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