Past-paper walk-through

Variation ▪ 18.1

eXercise

Questions in this set

- 0610/21 N25 Q30 ▪ 1 mark
- 0610/22 J25 Q32 ▪ 1 mark
- 0610/23 J25 Q33 ▪ 1 mark
- 0610/22 M25 Q33 ▪ 1 mark

Question 30

0610/21 N25 ▪ Q30 ▪ 1 mark

30 What is a source of genetic variation that alters the base sequence of DNA?

A gene mutation

B mitosis

C random fertilisation

D random mating

Solution 30

Answer: **A**

Why

- A new allele needs the DNA base sequence itself to change.
- Only a gene mutation does that.
- Mitosis copies DNA faithfully, and random mating or fertilisation just recombines existing alleles.

Question 32

0610/22 J25 ▪ Q32 ▪ 1 mark

32 What is a way in which new alleles are formed?

A artificial selection

B mutation

C natural selection

D sexual reproduction

Solution 32

Answer: **B**

Why

- A new allele is a new version of a gene, which means the DNA base sequence has changed.
- Only mutation changes the base sequence.
- Sexual reproduction and selection *rearrange* or *filter* existing alleles – they do not create new ones.

Question 33

0610/23 J25 ▪ Q33 ▪ 1 mark

33 Which row describes continuous and discontinuous variation?

	continuous variation	discontinuous variation
A	body mass in animals is an example	caused by genes and the environment
B	caused by genes and the environment	seed shape in peas is an example
C	caused by genes only	ABO blood groups

Question 33

D	seed colour in peas is an example	is an example caused by genes only

Solution 33

Answer: **B**

Why

- Continuous variation gives a range of values with no distinct categories – body mass, for example.
- It is usually caused by many genes together with the environment.
- Discontinuous variation gives distinct categories, such as blood group, and is controlled by genes alone.

Question 33

0610/22 M25 ▪ Q33 ▪ 1 mark

33 What are sources of genetic variation in populations?

A meiosis, mutation, random mating

B meiosis, random mating, asexual reproduction

C mitosis, mutation, random fertilisation

D mitosis, random fertilisation, asexual reproduction

Solution 33

Answer: **A**

Why

- Meiosis shuffles the chromosomes, so it creates variation.
- Mutation creates entirely new alleles.
- Random mating and fertilisation combine alleles in new ways; mitosis and asexual reproduction produce *identical* cells, so they create none.