

## Inheritance – 2023 November IGCSE 0610

1. **Nov/2023 /Paper\_ 0610/11/No.33**

Which statement about the human sex chromosomes is correct?

- A Females have an X chromosome and a Y chromosome.
- B Females have two Y chromosomes.
- C Males and females have at least one X chromosome.
- D Males and females have at least one Y chromosome.

2. **Nov/2023 /Paper\_ 0610/11/No.34**

The inheritance of seed colour in pea plants is controlled by a single gene. The allele for yellow seed colour, Y, is dominant. The allele for green seed colour, y, is recessive.

What are the possible genotypes of a pea seed that is yellow?

- A YY or yy only
- B YY, Yy or yy
- C YY or Yy only
- D Yy or yy only

3. **Nov/2023 /Paper\_ 0610/13/No.30**

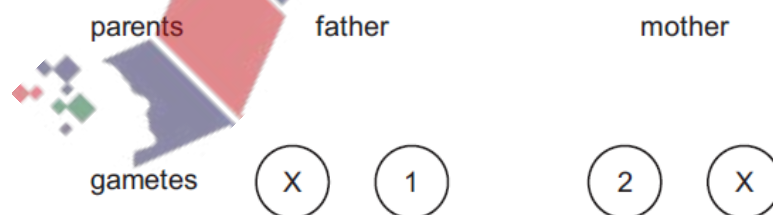
A pea plant with the genotype YY is crossed with a pea plant with the genotype yy.

What are the possible genotypes of the offspring?

- A YY and yy
- B all Yy
- C Yy and yy
- D all YY

4. **Nov/2023 /Paper\_ 0610/13/No.34**

The diagram shows part of a genetic diagram for the inheritance of sex in humans. The sex chromosomes in two gametes are shown.



What are the sex chromosomes in gametes 1 and 2?

	gamete 1	gamete 2
A	X	Y
B	X	X
C	Y	Y
D	Y	X

5. Nov/2023 /Paper\_ 0610/21/No.31

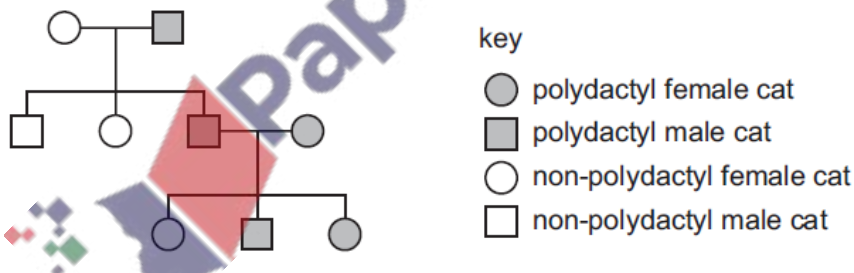
Which row shows correct information about mitosis?

	cells produced by mitosis	number of chromosomes in the daughter cells compared to the parent cell
A	are genetically different to the parent cell	half the number
B	are genetically different to the parent cell	the same number
C	are genetically identical to the parent cell	half the number
D	are genetically identical to the parent cell	the same number

6. Nov/2023 /Paper\_ 0610/21/No.32

Polydactyly is a condition that can occur in cats and results in affected individuals having extra toes.

The diagram shows the inheritance of the condition in a family of cats.

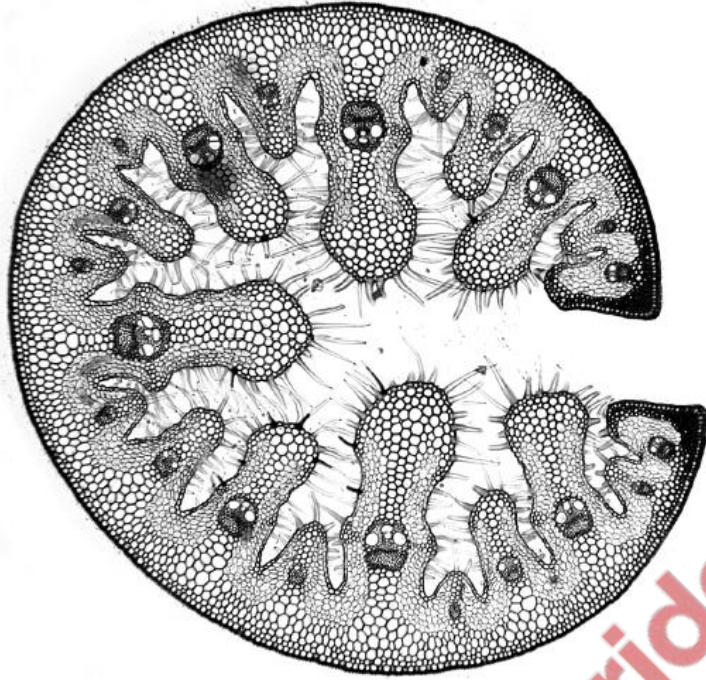


What does the family tree show about the allele for polydactyly?

- A It is codominant.
- B It could be dominant or recessive.
- C It is dominant.
- D It is recessive.

7. Nov/2023 /Paper\_ 0610/21/No.36

The photomicrograph shows a cross-section through a marram grass leaf.



Which feature is an adaptation of a xerophyte?

- A the presence of chloroplasts
- B the presence of fine hairs
- C the presence of phloem tissue
- D the presence of xylem vessels

8. Nov/2023 /Paper\_ 0610/22/No.32

Why are cells in the pancreas the only body cells that produce insulin?

- A All of the genes in the nucleus of a cell in the pancreas are expressed.
- B Other body cells do not have the gene for insulin.
- C The cells in the pancreas have twice as many genes as the other body cells.
- D The gene for insulin is only expressed by cells in the pancreas.

9. Nov/2023 /Paper\_ 0610/22/No.33

Which statement is correct?

- A Mitosis always produces offspring that are homozygous.
- B Mitosis produces cells that are genetically identical.
- C Mitosis produces gametes in animals.
- D Mitosis only produces haploid cells.

10. Nov/2023 /Paper\_ 0610/23/No.33

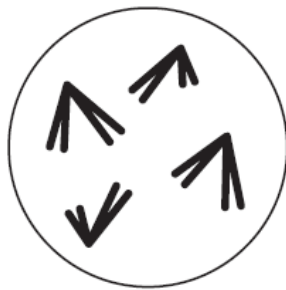
Pea plants produce either yellow or green seeds. Yellow (Y) is dominant to green (y).

What are the most likely phenotypes of the offspring of a cross between YY and Yy plants?

- A 50% yellow and 50% green
- B 75% yellow and 25% green
- C 100% yellow
- D 100% green

11. Nov/2023 /Paper\_ 0610/23/No.34

The diagram shows the chromosomes of a cell after they have replicated and just before the cell divides by mitosis.



Which pair of cells will be produced at the end of mitosis?

