

27 Which statements describe the sex chromosomes in human gametes?

- 1 Egg cells contain either an X or a Y chromosome.
- 2 Egg cells contain only X chromosomes.
- 3 Sperm cells contain either an X or a Y chromosome.
- 4 Sperm cells contain only Y chromosomes.

A 1 and 3 **B** 1 and 4 **C** 2 and 3 **D** 2 and 4

28 Which statement describes the effect of meiosis on chromosome number?

- A** A diploid parent cell produces diploid daughter cells.
- B** A diploid parent cell produces haploid daughter cells.
- C** A haploid parent cell produces diploid daughter cells.
- D** A haploid parent cell produces haploid daughter cells.

29 A female with red-green colour blindness has a child with a male who does **not** have red-green colour blindness. The child is male.

What is the chance of this child having red-green colour blindness?

A 0% **B** 25% **C** 50% **D** 100%

29 Which chromosomes can be found in a single sperm?

A X and X **B** X and Y **C** X or X **D** X or Y

30 Why are lymphocytes the only cells that produce antibody proteins?

- A** Lymphocytes express all the genes in the nucleus.
- B** Lymphocytes have twice as many genes as other cells.
- C** Other cells do **not** have the genes for antibodies.
- D** The genes for antibodies are only expressed in lymphocytes.

31 During protein synthesis, what is the function of the ribosome?

- A** It assembles amino acids in a chain.
- B** It carries a copy of a gene to the cytoplasm.
- C** It contains the code for the synthesis of a protein.
- D** It determines the order of bases in the protein.

32 The photograph shows a speckled chicken.

Speckled chickens have white feathers and black feathers.



When a chicken with only white feathers and a chicken with only black feathers are crossed, all of the offspring are speckled.

What would be the expected phenotypic ratio if a speckled chicken was crossed with a chicken with only white feathers?

- A** all offspring have only white feathers
- B** all offspring are speckled
- C** 1 white feathers only : 1 speckled
- D** 3 white feathers only : 1 speckled

33 What are stem cells?

- A** specialised cells that divide by meiosis to produce daughter cells
- B** specialised cells that divide by mitosis to produce daughter cells
- C** unspecialised cells that divide by meiosis to produce daughter cells
- D** unspecialised cells that divide by mitosis to produce daughter cells

30 What are alleles?

- A** a pair of chromosomes
- B** different versions of the same gene
- C** the total number of genes on one chromosome
- D** two genes side by side on the same chromosome

33 Four features of cell division are listed.

- 1 Haploid cells are produced.
- 2 New cells are genetically identical.
- 3 It is a reduction division.
- 4 It results in variation.

Which features would be associated with meiosis?

- A** 1, 2 and 3 **B** 1, 2 and 4 **C** 1, 3 and 4 **D** 2, 3 and 4