Higher Combined version — Higher Tier (★) included; Separate-only (◆) removed.

Q1. State THREE differences between mitosis and meiosis.

[3 marks]

Q2. Explain why meiosis is essential for maintaining chromosome number across generations.

[2 marks]

★ HIGHER TIER

Q3. ★ Explain how crossing over during meiosis produces genetic variation.

[3 marks]

Total: 8 marks

Q1 (3 marks)

State THREE differences between mitosis and meiosis.

- Mitosis: 2 daughter cells; meiosis: 4 [1]
- Mitosis: identical; meiosis: genetically different [1]
- Mitosis: diploid; meiosis: haploid [1]

Q2 (2 marks)

Explain why meiosis is essential for maintaining chromosome number across generations.

- Meiosis produces haploid gametes (23 chromosomes) [1]
- Fertilisation of two haploid gametes restores the diploid number (46) [1]

Q3 (3 marks) [★ HT]

★ *Explain how crossing over during meiosis produces genetic variation.*

- Homologous chromosomes pair up in meiosis I [1]
- Sections of chromatids exchanged between homologous chromosomes [1]
- New combinations of alleles on each chromosome — each gamete genetically unique [1]