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

Q1. Huntington's disease (H) is dominant. A person (Hh) has children with unaffected partner (hh). Use a Punnett square to find probability of affected child.

[4 marks]

Q2. Distinguish between continuous and discontinuous variation. Give an example of each.

[3 marks]

★ HIGHER TIER

Q3. ★ Explain what co-dominance means. Use ABO blood groups as your example.

[2 marks]

Total: 9 marks

Q1 (4 marks)

Huntington's disease (H) is dominant. A person (Hh) has children with unaffected partner (…

- Gametes of Hh: H and h. Gametes of hh: h and h [1]
- Punnett square: Hh, Hh, hh, hh [1]
- 50% / 2 in 4 probability of Huntington's (Hh) [1]
- 50% probability of unaffected (hh) [1]

Q2 (3 marks)

Distinguish between continuous and discontinuous variation. Give an example of each.

- Continuous: range of values, many genes + environment (e.g. height) [1]
- Discontinuous: distinct categories, usually one gene (e.g. ABO blood group) [1]
- Continuous: normal distribution; discontinuous: separate groups [1]

Q3 (2 marks) [★ HT]

★ *Explain what co-dominance means. Use ABO blood groups as your example.*

- Co-dominance: both alleles expressed equally — neither masks the other [1]
- I■ and I■ are co-dominant: I■ I■ genotype → blood group AB (both A and B antigens expressed) [1]