

## Answers to examination-style questions

Answers	Marks	Examiner's tips
1 sections of chromatids exchanged; sections have different alleles; new combinations of (linked) alleles;	3	Make sure you have a picture in your mind as to how crossing over works. Use the correct terms, e.g. 'chromatids', 'alleles'.
2 (a) appropriately placed box;	1	You must include an organic base, a sugar group and a phosphate group.
(b) (i) B;	1	DNA has deoxyribose sugar while RNA has ribose sugar.
(ii) A;	1	All the bases in DNA and RNA are nitrogen-containing bases.
(c) (i) codes for/determines (sequence of) amino acids/specific protein produced/ mRNA formation;	1	Each set of three bases codes for an amino acid.
(ii) hydrogen bonds;	1	These bonds are not as strong as the covalent bonds between the atoms in the DNA molecule.
(iii) stability/protects bases/replication;	1	
3 (a) (i) one form of a (specific) gene;	1	This is a really common question and this is the best answer to give.
(ii) a section of DNA that codes for a polypeptide;	1	
(b) 387;	1	Each amino acid is coded for by 3 bases. Number of bases = $129 \times 3$ .
4 (a) (i) TB, Tb, tB, tb;	1	Each gamete genotype must have 1 allele for each gene.
(ii) separation of chromatids;	1	
(b) (i) crossing over occurs; between <b>D</b> and <b>G</b> ; sections of chromatids/chromosomes/ DNA/genes exchanged;	3	
(ii) crossing over is infrequent (between close genes);	1	The closer the genes are on the chromosomes, the less likely they are to cross over because the distance between them is shorter.

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A palisade cell in a leaf	A bacterium
larger	smaller
linear, form a line	circular
have proteins attached	not associated with proteins

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You must match up the points in the table.

Size is relative and must be comparative, e.g. larger, not large.