**1.** C / D

[1]

**2.** B

[1]

**3.** D

[1]

**4.** A

[1]

**5.** B

[1]

**6.** (a) (i) centromere;

(ii) sister chromatids / chromatids; 2
*Do not accept chromosome(s).*

(b) non-disjunction;
the failure of homologues / sister chromatids to separate during meiosis;
anaphase I / anaphase II;
two copies of chromosome 21 in gamete;
fertilization leads to trisomy / trisomy 21; 3 max

(c) crossing over (in prophase I) leads to new combinations of alleles;
random alignment of homologues (at metaphase I) produces new chromosome combinations / independent assortment; 2 max

[7]

**7.** random orientation of bivalents / pairs of chromosomes;
maternal and paternal chromosome could go to either pole;
2n combinations;
*eg* over 8 million in humans;
crossing over;
exchange of material between homologous chromosomes /
non-sister chromatids;
segregation of alleles in meiosis;
combinations of alleles are broken up;
fertilization brings together genes /
alleles from two different parents;
fertilization generates new combinations of genes / alleles;
random fertilization /
many possible combinations of male and female gamete;
*eg* over 64 million million in humans (ignoring crossing over);

[6]

**8.** two divisions in meiosis, only one in mitosis;
meiosis results in haploid cells, mitosis in diploid cells;
crossing over only occurs in meiosis;
no S phase precedes meiosis II;
chromosome behaviour in meiosis II and mitosis is similar / chromosome
behaviour in meiosis I and mitosis is different;
chiasmata only form during meiosis;
homologous chromosomes move to the equator in pairs only in meiosis;
*Do not accept number of cells produced - it is a result not a behaviour.*

[5]