**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]