

2.3.4

P₁ Phenotype Normal female x Normal male ✓
 Genotype $X^D X^d$ x $X^D Y$ ✓

Meiosis

G/gametes X^D, X^d x X^D, Y ✓

Fertilisation

F₁ Genotype $X^D X^D$ $X^D Y$ $X^D X^d$ $X^d Y$ ✓ *

Phenotype Normal females, Normal male, Colour blind male } ✓ *

P₁ and F₁ ✓
 Meiosis and fertilisation ✓

OR

P₁ Phenotype Normal female X Normal male ✓
 Genotype $X^D X^d$ X $X^D Y$ ✓

Meiosis

Fertilisation

Gametes	X^D	Y
X^D	$X^D X^D$	$X^D Y$
X^d	$X^D X^d$	$X^d Y$

1 mark for correct gametes ✓
 1 mark for correct genotypes ✓ *

F₁ Phenotype Normal females, Normal male, Colour blind male } ✓ *

P₁ and F₁ ✓
 Meiosis and fertilisation ✓

***Compulsory 2 + Any 4 (6) (14)**

- 2.4 2.4.1 (a) Suffers from Huntington's✓chorea (1)
- (b) (b) hh✓ (1)
- 2.4.2 hh✓ (1)
- 2.4.3 - Emma's genotype is Hh ✓/heterozygous
 - The father's genotype has to be hh✓/homozygous recessive
 - a cross between only these two genotypes✓ /(Hh and hh) will ensure that there is 50% chance of the child not inheriting the disease
 - - The child inherits one recessive allele from each parent✓ Any 3 (3)
- (6)**
[38]