Question number	Answer	Notes	Marks
1(a) (i)	T; U;	T and any = 1 U and any =1 U, T and any = 1 P, Q and T = 0 Ignore R so U, T and R = 2	2
(ii)	poor vision / CEA / Collie eye anomaly / defect;		1
(iii)	(cross) S / dd + Dd / Dd + dd;		1
(iv)	Dd / heterozygous / dD;	Allow Dd , Dd, Dd, Dd	1
(b) (i)	sperm(s) / spermatozoa;	Ignore X and Y	1
(ii)	egg(s) / ova / ovum;	Ignore X / Reject ovule	1
(iii)	fertilisation;		1
(iv)	uterus / womb;		1

Total 9 marks

Question number	Answer	Notes	Marks
2 (a)	A urethra; B vas deferens / sperm duct / seminal duct; C testis / testes / testicle / epididymis;	Reject ureter / ureta Reject scrotum	3
(b)	1. p vent sperm leaving penis / leaving urethra; 2. n fertilisation / fusion / sperm can't reach / eq;	Allow no sperm in semen	2 max
(c)	1. stes outside / ovaries inside; 2. c use local anaesthetic / no major surgery / less risk/ safer / less invasive/does not affect other organs/ eq; 3. ssible to reverse / eq;	not just easier to access	2 max
(d)	1. testosterone; 2. erm development / production / eq; 3. secondary sexual characteristics / one named secondary sexual characteristic; 4. x drive / aggression / eq;	If name of hormone incorrect max 2	3 max

Total 10 marks

<table>
<tr><th>Question number</th><th>Answer</th><th>Notes</th><th>Marks</th></tr>
<tr><td>3(a)</td><td>
<table>
<tr><th>statement</th><th>section letter</th></tr>
<tr><td>This is the stigma</td><td>(A)</td></tr>
<tr><td>This is where fertilisation occurs</td><td>C;</td></tr>
<tr><td>This is where the pollen grains land at pollination</td><td>A;</td></tr>
<tr><td>This is where most pollen tube growth occurs</td><td>B;</td></tr>
<tr><td>This is where a seed will develop</td><td>C;</td></tr>
</table>
</td><td>if two letters in one box = 0</td><td>4</td></tr>
<tr><td>(b)</td><td>1. spikes / eq;

2. attach to insect / stick to insect / eq;</td><td>Ignore sticky / feathery</td><td>2</td></tr>
<tr><td>(c) (i)</td><td>1. increase / eq;

2. levels / decreases after 80 minutes / decreases at 100 minutes / from 80% / drops to 78%</td><td></td><td>2</td></tr>
<tr><td>(ii)</td><td>46 ± 2 / 44 to 48 (minutes);;</td><td>Allow one mark for 60% in working</td><td>2</td></tr>
<tr><td>(iii)</td><td>0.1125 to 0.175 mm;; (range between 9 and 14 mm)</td><td>Allow one mark for ÷ 80 in working</td><td>2</td></tr>
</table>

(d)	1. variation / diversity / different; 2. of alleles / genes; 3. better chance of survival / not all killed by disease / eq;	genetic variation = 2 Mp2 ignore DNA / chromosomes Mp3 allow resistance to disease	2 max

Total 14 marks

Question number	Answer	Notes	Marks
4 (a)	A – Dd / dD; L - DD;		2
(b)	11 / eleven;		1
(c) (i)	0 / zero; 50;		2
(ii)	1. no fusion of recessive gametes / eq; 2. random / probability / chance / luck / eq; 3. no children who are dd / each child has at least one dominant allele / eq; 4. embryo selection / IVF / eq;		1

(Total for Question = 6 marks)

Question number	Answer	Notes	Marks
5	gametes; sperm / male; egg / female; tail / flagellum / flagella; meiosis; testis / testes / testicles; urethra; oviduct / Fallopian tube;	reject penis / sperm duct	8

(Total for Question = 8 marks)