AQA GCSE BIOLOGY (HIGHER) · 8461

BIOLOGY



MARK SCHEME

4.6.1 REPRODUCTION (PACK 5)

SCORE	PERCENTAGE
/25	%

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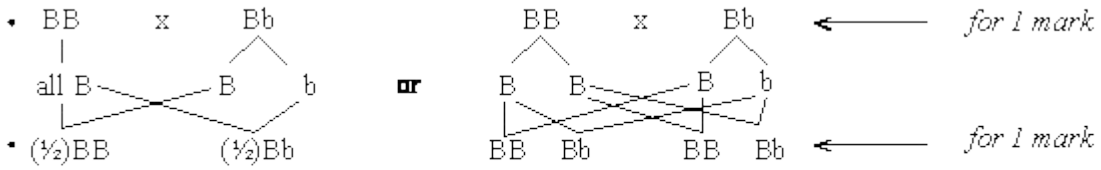
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Mark schemes

Q1.

(a) First Generation



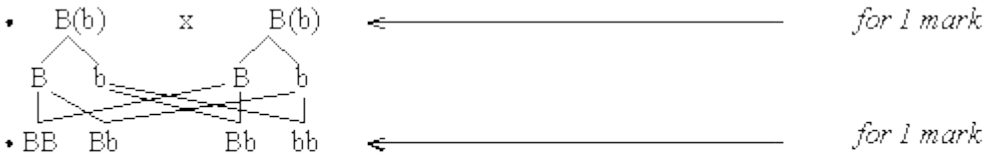
or as matrix

	B	B
B	BB	BB
b	Bb	Bb

1 mark for correct column and row headings
1 mark for correct outcomes

allow one mark for being able to produce a correct genetic cross
(even if from an incorrect starting point)

Second generation



or as a matrix

	B	b
B	BB	Bb
b	Bb	bb

1 mark for correct column and row headings
1 mark for correct outcomes

4

(b)
- green colour gives an advantage/camouflage
- more green flies dm black flies survive to breed*
- pass on their genes to the next generation
- (* but implied by 3rd bullet point)

for 1 mark each

3

[7]

Q2.

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sex
genes
chromosomes
nucleus *in order*

for 1 mark each

[4]

Q3.

(a) sexual / sex

for 1 mark

1

(b) *idea that*
sexual reproduction brings about a mixture of genes
or similar / different genes / parents / gametes / DNA /
characteristics / chromosomes (*not* features)

for 1 mark

1

(c) (i) asexual / cloning (*allow* vegetative)

for 1 mark

1

(ii) (A) *idea that* (they are exactly the same). *Do not allow*
similar or just <u>one</u> named feature.

for 1 mark

2

(B) different (*allow* similar but *do not allow* same).
Allow any one named difference

for 1 mark

(d) (i) greater the X-ray dose, greater the % of mutations
or % of mutations increases steadily / in proportion to X-ray dose

for 1 mark

1

(ii) ionising radiations / ultra-violet light / alpha particles / beta particles / gamma rays / radio activity / chemicals / drugs / smoking / natural in meiosis / spontaneous / cell replication / toxic waste / pollution

1

Accept radioactivity but not radiations alone.

for 1 mark

[7]

Q4.

(a) • caused by a recessive* gene / allele

(allow non / not dominant)

• both parents heterozygous / carry the gene / allele

for 1 mark each

offspring needs two recessive genes to have / inherit disease

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for 2 marks

or

- Nn × Nn
- NN Nn Nn nn

for 1 mark each

nn identified as having the disease*

for 2 marks

4

(b) any reference to DNA

gains 1 mark

but

different genes means difference in DNA

gains 2 marks

idea of

different codes / instructions for making proteins

or

different (order of) amino acids (in proteins)

for 1 mark

3

[7]

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