AQA GCSE Biology | 8461

SPECIFICATION POINT 4.6.3.3

The understanding of genetics (biology only)

Mark schemes and examiner comments

Tier	**Higher**
Question groups	**2**
Available paper years	**2011–2015**

Using this booklet

1. Booklet answer numbers match the question booklet.
2. Use the original question number within marking tables.
3. Examiner comments are included where available.

Name: _____ **Date:** _____

Where a precise marking extract is unavailable, the full source document is included in an appendix. Any missing mark scheme is explicitly identified.

4.6.3.3 The understanding of genetics (biology only)

Answer 01 · Mark scheme

June 2011 | BLY2H | Original Q6 | Legacy

Question 6

question	answers	extra information	mark
6(a)	Aa	allow dominant **and** recessive allow heterozygous	1
6(b)(i)	gametes A, a **and** A, a	max **1** if gametes are incorrect (eg in punnet square)	1
	correctly derived offspring from cross	allow ecf from their gametes	1
	identification of round **and** wrinkled offspring	for this mark the phenotype of each different offspring genotype must be indicated	1
6(b)(ii)	(due to) chance **or** expected ratio is only a probability	accept the idea of small numbers not representative ignore anomaly / random / coincidence do **not** accept error	1
6(c)	any **one** idea from: • genes / chromosomes / alleles / DNA not discovered / known about • published in obscure journal / few scientists read his work	do **not** accept religious theme (ie confusion with Darwin's difficulties with the church)	1
Total			**6**

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BLY2H

4.6.3.3 The understanding of genetics (biology only)

Answer 02 · Mark scheme June 2015 | BL2HP | Original Q8 | Legacy

Question	Answers	Extra information	Mark	AO / Spec. Ref.
8(a)(i)	3.15 : 1	accept 3.147:1 **or** 3.1 : 1 **or** 3 : 1 do **not** accept 3.14 : 1 Ignore 705:224	1	AO2 2.7
8(a)(ii)	any **two** from: • fertilisation is random **or** ref. to chance combinations (of alleles / genes / chromosomes) • more likely to get theoretical ratios **or** see (correct) pattern **or** get valid results if large number • anomalies have limited effect / anomalies can be identified	 allow ref. to more representative / reliable do **not** allow more accurate **or** precise ignore fair / repeatable accept example of an anomaly	2	AO3 2.7, 2.7.2a
8(b)(i)	in sequence: Homozygous Homozygous Heterozygous	All 3 correct = 2 marks 2 correct = 1 mark 1 or 0 correct = 0 marks	2	AO3 2.7
8(b)(ii)	genetic diagram including: Parental genotypes: **Nn** and **Nn** **or** Gametes: **N** and **n** + **N** and **n** <u>derivation</u> of offspring genotypes: **NN Nn Nn nn** identification: **NN** and **Nn** as purple **and nn** as white	 allow other characters / symbols only if clearly defined allow genotypes correctly derived from candidate's P gametes allow correct identification of candidate's offspring genotypes but only if some F_2 are purple and some are white	 1 1 1	AO2 2.7

4.6.3.3 The understanding of genetics (biology only)

Answer 02 · Mark scheme

June 2015 | BL2HP | Original Q8 | Legacy

Question	Answers	Extra information	Mark	AO / Spec. Ref.
8(c)	any **two** from: • did not know about chromosomes / genes / DNA **or** did not know chromosomes occurred in pairs • had pre-conceived theories • Mendel's (mathematical) approach was novel concept • Mendel was not part of academic establishment • work published in obscure journal / work lost for many years • peas gave unusual results cf other species • Mendel's results were not corroborated until later / 1900	 ignore genetics eg blending of inherited characters ignore religious ideas unless qualified allow his work was not understood or no other scientist had similar ideas allow he was not considered to be a scientist / not well known / he was only a monk allow he only worked on pea plants	2	AO1 2.7
Total			**10**	