

Mark Scheme (Results)

Summer 2014

PLSC Science (LSC01/01)
Edexcel International Lower
Secondary Curriculum

Y9 Achievement test

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

SECTION A

Question Number	Answer	Mark
1	C	1
2	B	1
3	B	1
4	B	1
5	C	1
6	B	1
7	D	1
8	C	1
9	B	1
10	D	1
Total for question		10

Question	Acceptable answers	Additional guidance	Mark
11	1 mark for each protection support movement	Accept: protects (named) organ Accept: keeps body upright/ keeps body shape Ignore: structure/keeping body straight/keeps body standing Accept: Muscle attachment Accept: make blood cells	3
		Total for question	3

Question	Acceptable answers	Additional guidance	Mark
12	<p>4 correct- 2 marks 3 or 2 correct – 1 mark</p>		2
		Total for question	2

Question	Acceptable answers	Additional guidance	Mark
13	<p>Any 1 of each</p> <p>Advantage (1)</p> <p>only water vapour released</p> <p>no greenhouse gas(es) produced</p> <p>(water) plentiful/will not run out</p> <p>Disadvantage (1)</p> <p>requires lots of energy/to produce</p> <p>production releases carbon dioxide(CO₂) /contributes to climate change/global warming/greenhouse gas</p> <p>has to be stored under high pressure/in heavy cylinders</p> <p>flammable</p>	<p>Ignore: references to cost/waste</p> <p>Ignore: reference to pollution if unqualified</p> <p>Accept: no carbon dioxide/CO₂ formed</p> <p>Accept: reference to electricity/fossil fuel used in production</p> <p>Ignore: not environmentally friendly</p> <p>Accept: (could be) explosive/blow up</p> <p>Ignore: dangerous/hazardous if unqualified</p> <p>If give more than one answer ignore extra answer(s) unless incorrect science/contradictory</p>	<p>1</p> <p>1</p> <p>2</p>
		Total for question	2

Question	Acceptable answers	Additional guidance	Mark
14 a	<u>water</u> resistance	Accept: drag and friction Reject: air resistance	1
14 b	streamlined (1) faster (1)	Accept: "faster" as the first response if not used as the second one	2
Total for question			3

Question Number	Answer	Mark
15	C	1
16	D	1
17	A	1
18	B	1
19	C	1
20	A	1
21	B	1
22	A	1
23	A	1
24	C	1
Total for question		10

Question	Acceptable answers	Additional guidance	Mark
25a	asexual (reproduction)	Accept: vegetative	1
b	Any 2 from produces clones /produces (genetically) identical offspring (1) needs only one (parent/plant/organism) (1) plants can spread/colonise quickly (1)	Accept: (plants) have same genes Accept: offspring same as parent Accept: parent and offspring are alike/the same/look the same Accept: no genetic variation Ignore: replica Accept: no pollination/fertilisation/ seeds/ sex cells/gametes needed Accept: quicker	2
Total for question			3

Question	Acceptable answers	Additional guidance	Mark
26a	R, S, P, Q (2) R least reactive and Q most reactive (1) S, P in correct position (1)	If Q, P, S, R award 1 mark	2
b	copper (1) iron sulfate (1)	Accept: In any order Accept: recognisable spelling of sulfate Ignore any attempt at symbols	2
		Total for question	4
Question	Acceptable answers	Additional guidance	Mark
27a	man-made object (1) that orbits (a planet/Earth) (1)	Accept: goes/moves round (a planet/Earth)	2
b	Any 1 from communication/phones (1) spying/intelligence gathering (1) space / astronomical research (1) weather / meteorology / pollution monitoring (1) mapping/navigation (1) TV (1)	Ignore: military use or scientific use unless qualified.	1
		Total for question	3

Question Number	Answer	Mark
28	C	1
29	D	1
30	A	1
31	B	1
32	B	1
33	C	1
34	D	1
35	D	1
36	B	1
37	D	1
Total for question		10

Question	Acceptable answers	Additional guidance	Mark
38	(increasing light intensity) increases rate of photosynthesis (1)		1
	(at higher light intensity) then rate of photosynthesis stays the same/constant/does not increase anymore (1)		1
Total for question			2

Question	Acceptable answers	Additional guidance	Mark									
39a	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">F</td> <td style="text-align: center;">f</td> </tr> <tr> <td style="text-align: center;">F</td> <td>FF</td> <td>Ff</td> </tr> <tr> <td style="text-align: center;">f</td> <td>fF</td> <td>ff</td> </tr> </table>		F	f	F	FF	Ff	f	fF	ff	Accept: fF and Ff either way round.	1
		F	f									
F	FF	Ff										
f	fF	ff										
	(1)											
b	ff circled (1)	Accept: if ff circled but in wrong box	1									
Total for question			2									

Question	Acceptable answers	Additional guidance	Mark
40a	100 (1)	Accept: stays the same	1
b	gas (is given off) (1)	Accept: carbon dioxide/CO ₂ Ignore: any reference to evaporation Reject: reference to non-gaseous substance(s) Accept: acid spray (given off)	1
		Total for question	2

Question	Acceptable answers	Additional guidance	Mark
41a	X where screwdriver touches tin		1
b	↓ From handle of screwdriver direction (1) position: implication that force (is acting) <u>on the handle</u> (1)	position arrow can be above or below handle direction must be downwards between the vertical and the perpendicular (to handle) must be on/very close to the handle and must be level or to the left of the "w" in screwdriver	2
c	1.0 (1)	Accept: 1	1
		Total for question	4

SECTION B

Question	Acceptable answers	Additional guidance	Mark
42a	suitable scale for vertical axis (1) all points correctly plotted (2)	each small square represents 1 on vertical axis Reject points plotted on a non-linear scale -1 for each plotting error (maximum deduction 2 marks)	3
bi	point (60,25) circled on graph only (1)	ECF from (a) provided linear scale used	1
bii	repeat it (1)	Ignore: circle it/ignore it	1
ci	best fit line drawn through at least three points, but not the anomaly (1)	ECF line of best fit using their plotted points	1
cii	Correct prediction from their best fit line (1) (dependent on use of linear scale) cm (1)	+/- one small square If best fit line has not been extended to 100 on x-axis, then extrapolate to obtain prediction	2
		Total for question	8

Question	Acceptable answers	Additional guidance	Mark
43a	<p>Any 2 from:</p> <p>wear <u>safety</u> glasses / goggles /face masks/shield/visor/ lab coat/ overalls (1)</p> <p>point test tube away from self/others(1)</p> <p>wash (splashes off) hands/skin (1)</p> <p>wipe up any acid spills (on bench/floor) (1)</p>	<p>Accept: avoid skin contact/ wear gloves</p> <p>Ignore: "safety clothes" unqualified</p>	2
b	<p>The <u>larger</u> the surface area, the <u>shorter</u> the time (2)</p>	<p>Allow: quicker time/faster rate</p> <p>References to "it" should be taken to mean surface area unless stated otherwise</p> <p>Allow: converse – the <u>smaller</u> the surface area the <u>longer</u> the time</p> <p>Allow 1 mark for incomplete or partial answer with no errors or contradictions eg the powder took the shortest time</p>	2
c	<p>(all three) times will increase / it will take longer/ it will be slower (1)</p>	<p>Ignore: references to strength of acid</p>	1
Total for question			5

Question	Acceptable answers	Additional guidance	Mark
44a	Any 1 from (to make his results more) reliable(1) (to calculate an) average/mean (1)	Accept: in case one dies Ignore: references to anomalies Ignore: reference to accuracy/precision/validity/consistency/better result	1

Question	Acceptable answers	Additional guidance	Mark
b	B	If more than one answer given 0 marks	1
c	Any 2 from (same amount of) light/light intensity/sunlight (1) (same) temperature (1) (same amount of) water/moisture/watering (1)	Ignore: kept in same place Accept: grown for same time Ignore: sun alone	2
di	fertiliser (1)	Ignore: any letter given	1
dii	(number of) peppers (1)	Reject size of peppers Reject any other variable other than number (of peppers) Reject "pepper plants"	1
e	Any 1 from (as a) control (1) As a comparison/to compare the results / number of peppers (1) to see if the fertiliser had an effect (on the number of peppers)(1)	Accept: to see how many peppers are produced without fertiliser Accept: to see if fertiliser makes a difference to the number of peppers/ to see the difference on number of peppers with and without fertiliser Ignore: speed of growth/better growth/size of peppers	1
Total for question			7

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