Mark Scheme (Result)

October 2019

Pearson Edexcel International Lower Secondary Curriculum
In Science (LSC11)
Paper 01 Year 9 Achievement Test

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October 2019
Publications Code LSC11_01_1910_MS
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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.

Mark scheme

Question number	Answer	Mark
1	**The only correct answer is C (mouse)** ***A*** *is not correct because the corn is the producer* ***B*** *is not correct because the eagle is the tertiary consumer* ***D*** *is not correct because the snake is the secondary consumer*	**(1)**

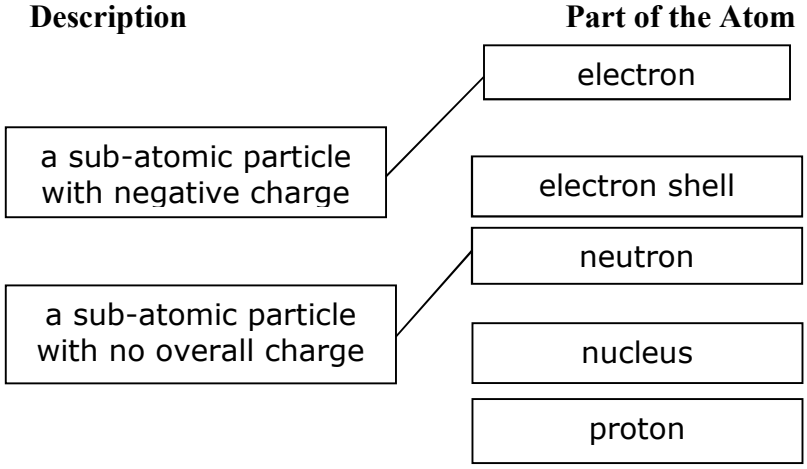
Question number	Answer	Mark
2	**The only correct answer is C** (copper is malleable) ***A*** *is not correct because being* a good conductor of electricity *does not make it suitable for this application.* ***B*** *is not correct because the reddish-brown colour of the copper is not important for this application.* ***D*** *is not correct because the shiny characteristic of copper is not important for this application.*	**(1)**

Question number	Answer	Mark
3	**The only correct answer is D** (m/s) ***A*** *is not correct because kmh is not a correct unit of speed* ***B*** *is not correct because kms is not a correct unit of speed* ***C*** *is not correct because ms is not a correct unit of speed*	**(1)**

Question number	Answer	Mark
4	**The only correct answer is D** (copper sulfate + water) ***A*** *is not correct because a metal oxide plus an acid does not give a metal plus hydrogen* ***B*** *is not correct because a metal oxide plus an acid does not give metal plus water* ***C*** *is not correct because a metal oxide plus an acid does not give a metal salt plus hydrogen*	**(1)**

Question number	Answer	Mark
5	**The only correct answer is B** (3500N) ***A*** *is not correct because 6000N – 2500N is equal to 3500N and not 2500N* ***C*** *is not correct because 6000N – 2500N is equal to 3500N and not 5500N* ***D*** *is not correct because 6000N – 2500N is equal to 3500N and not 8500N*	**(1)**

Question number	Answer	Additional guidance	Mark
6	**Award 1 mark for the following** larger ears (for cooling) (1) **Accept any other appropriate response**		**(1)**

Question number	Answer	Mark
7	 Award 1 mark for each correct arrow. Do not award answers with more than one line to/from any of the boxes.	**(2)**

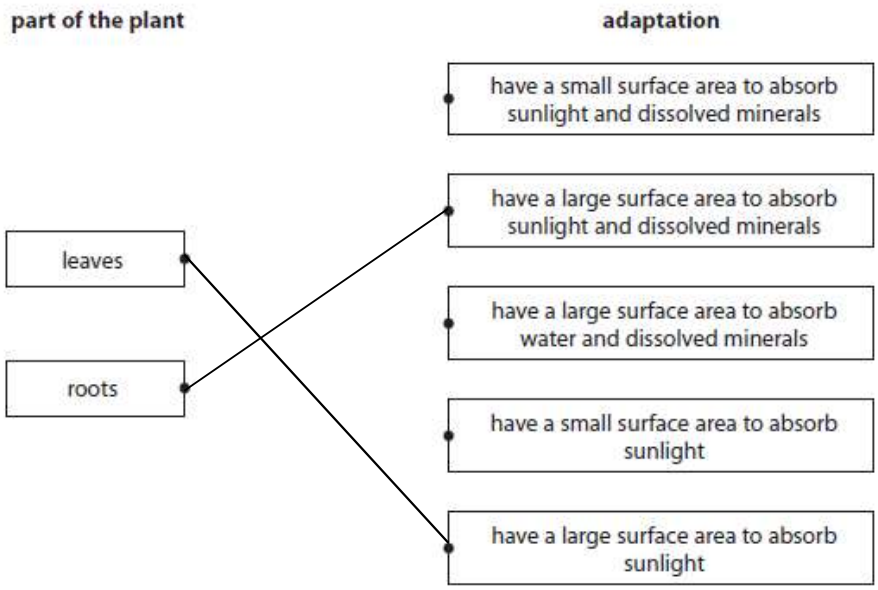
Question number	Answer	Mark
8		(2)

Statement	True	False
The work done when moving the object from B to C is 75J	✓	
The work done when moving the object from A to B is equal to the work done in moving the object from B to C		✓
The work done when moving the object from A to B is half the work done in moving the object from B to C	✓	

Two correct for 1 mark

All correct for 2 marks

Question number	Answer	Mark
9		(2)



Award 1 mark for each correct arrow.
Do not award answers with more than one line to/from any of the boxes.

Question number	Answer	Mark
10	**Award one mark for the following** most reactive: metal Y metal X least reactive metal Z	(1)

Question number	Answer	Mark
11(a)	**Award one mark for the following** Reading from the graph 6.4 N (accept answer in range 6.2 – 6.6)	(1)

Question number	Answer	Mark
11(b)	<table><tr><th>Statement</th><th>True</th><th>False</th></tr><tr><td>the mass of the same object is less on the Moon than on the Earth</td><td></td><td>✓</td></tr><tr><td>the gravitational field strength on the Moon is less than on the Earth</td><td>✓</td><td></td></tr><tr><td>the mass of the same object is greater on the Moon than on the Earth</td><td></td><td>✓</td></tr><tr><td>the gravitational field strength on the Moon is the same as on the Earth</td><td></td><td>✓</td></tr></table> **All correct for 1 mark**	(1)

Question number	Answer	Mark
12	**Award 1 mark for identification that energy level between each trophic level has decreased and 1 mark for a linked expansion up to a maximum of 2 marks** The amount of available energy at each trophic level has decreased (by 90%) (1) this is because energy is lost due to growth/movement/excretion/metabolism/heating (of environment) (1)	(2)

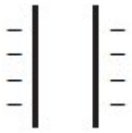
Question number	Answer	Mark
13(a)	11 (electrons)	**(1)**

Question number	Answer	Mark
13(b)	12 (neutrons)	**(1)**

Question number	Answer	Mark
14	**Award 1 mark for the following** stationary	**(1)**

Question number	Answer	Mark
15	**The only correct answer is B** (rate of photosynthesis is increasing between 0700 and 1200 hours) ***A*** *is not correct because there is no photosynthesis taking place between 0300 and 0600 hours* ***C*** *is not correct because the rate of photosynthesis is decreasing between 1200 and 1700 hours* ***D*** *is not correct because there is no photosynthesis taking place between 1800 and 2100 hours*	**(1)**

Question number	Answer	Mark
16	**The only correct answer is D (**P and R) ***A*** *is not correct because the chromatograms for P and Q are different* ***B*** *is not correct because the chromatograms for Q and S are different* ***C*** *is not correct because the chromatograms for R and S are different*	**(1)**

Question number	Answer	Mark
17	**The only correct answer is A** like charges repel  ***B*** *is not correct because the pair of strips will attract each other* ***C*** *is not correct because the pair of strips will attract each other* ***D*** *is not correct because the pair of strips will attract each other*	**(1)**

Question number	Answer	Mark
18	**The only correct answer is D** (33 g and 2400 kJ) ***A*** *is not correct because 22g is the amount of protein in 100g of the meal and the person eats 150g* ***B*** *is not correct because 22g is the amount of protein in 100g of the meal and the person eats 150g* ***C*** *is not correct because 1600kJ is the amount of energy in 100g of the meal and the person eats 150g*	**(1)**

Question number	Answer	Mark
19	**The only correct answer is C** (gravitational potential and kinetic) ***A*** *is not correct because chemical and elastic potential are not stored, gravitational potential and kinetic stores are stored in a flying aeroplane* ***B*** *is not correct because elastic potential is not stored, gravitational potential and kinetic stores are stored in a flying aeroplane* ***D*** *is not correct because nuclear is not stored, gravitational potential and kinetic stores are stored in a flying aeroplane*	**(1)**

Question number	Answer	Mark
20(a)(i)	**Award one mark for the following** the pulse rate increases (1) **Accept any other appropriate response**	(1)

Question number	Answer	Mark
20(a)(ii)	**Award one mark for the following** 40 (minutes) (1)	(1)

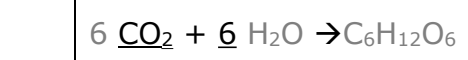
Question number	Answer	Mark
20(b)	**Award one mark for the following** The heart (pumping/ beating) (1) **Accept any other appropriate response**	(1)

Question number	Answer	Mark
20(c)	**Award 1 mark for identification that arteries have thick muscular walls and 1 mark for a linked expansion up to a maximum of 2 marks** arteries have thick muscular walls (1) because arteries carry blood (away from the heart) under high pressure (1) **Accept any other appropriate response**	(2)

Question number	Answer	Mark
21	**Award one mark for the following** solution	(1)

Question number	Answer	Mark
22(a)(i)	**Award one mark for the following** energy is conserved/ total output energy is equal to the total input energy (1) Accept any other appropriate response	(1)

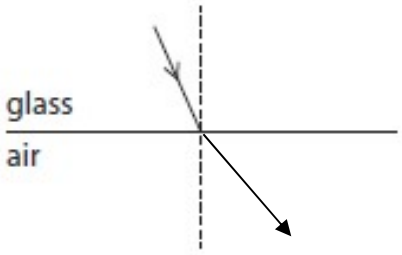
Question number	Answer	Mark
22(a)(ii)	**Award one mark for the following** 5/20 x 200 = 50 J (1)	(1)

Question number	Answer	Mark
23	 Award one mark for CO_2 and O_2 Fully correct equation – 2 marks	(2)

Question number	Answer	Mark
24(a)	**Award one mark for the following** A chemical change/reaction takes place **Accept any other appropriate response**	(1)

Question number	Answer	Mark
24(b)	**Award 1 mark for identification that mass is conserved and 1 mark for a linked expansion up to a maximum of 2 marks** the mass has not changed/mass has been conserved (1) and this is because no gas has been given off (nothing has been absorbed from the air) (1) **Accept any other appropriate response**	(2)

Question number	Answer	Mark
25(a)	**Award one mark for the following** refraction	(1)

Question number	Answer	Mark
25(b)	**Award one mark for the following**  Accept any ray drawn between the straight through point and the boundary(i.e. refracted away from the normal). Incident ray and refracted ray must meet at the boundary. Ray with arrow showing direction of travel is also required.	(1)

Question number	Answer	Mark
26	**The only correct answer is C** nitrogen | oxygen | argon | carbon dioxide ***A*** *is not correct because region W is nitrogen, region X is oxygen, region Y is argon and region Z is carbon dioxide* ***B*** *is not correct because region W is nitrogen, region X is oxygen, region Y is argon and region Z is carbon dioxide* ***D*** *is not correct because region W is nitrogen, region X is oxygen, region Y is argon and region Z is carbon dioxide*	(1)

Question number	Answer	Mark
27	**The only correct answer is C** cytoplasm | mitochondria ***A*** *is not correct because Label 1 is the cytoplasm and Label 2 is the mitochondria* ***B*** *is not correct because Label 1 is the cytoplasm and Label 2 is the mitochondria* ***D*** *is not correct because Label 1 is the cytoplasm and Label 2 is the mitochondria*	**(1)**

Question number	Answer	Mark
28	**The only correct answer is A** (a magnetic field is produced around the copper rod) ***B*** *is not correct because a magnetic field is not produced by the copper rod* ***C*** *is not correct because a magnetic field is not produced by the switch* ***D*** *is not correct because there is a magnetic field produced*	**(1)**

Question number	Answer	Mark
29	**The only correct answer is D** ($2Ca(s) + O_2(g) \rightarrow 2CaO(s)$) ***A*** *is not correct because the equation is not balanced* ***B*** *is not correct because the state symbol for oxygen is g not s and the state symbol for calcium oxide is s and not g* ***C*** *is not correct because the formula of oxygen is O_2 not O.*	**(1)**

Question number	Answer	Mark
30	**The only correct answer is B** (Q only) ***A*** *is not correct because point P on the graph shows no change in the population number* ***C*** *is not correct because point P and R on the graph show no change in the population number* ***D*** *is not correct because point S shows a decrease in the population number.*	**(1)**

Question number	Answer	Mark
31(a)	**Award one mark for the following** 4.0	**(1)**

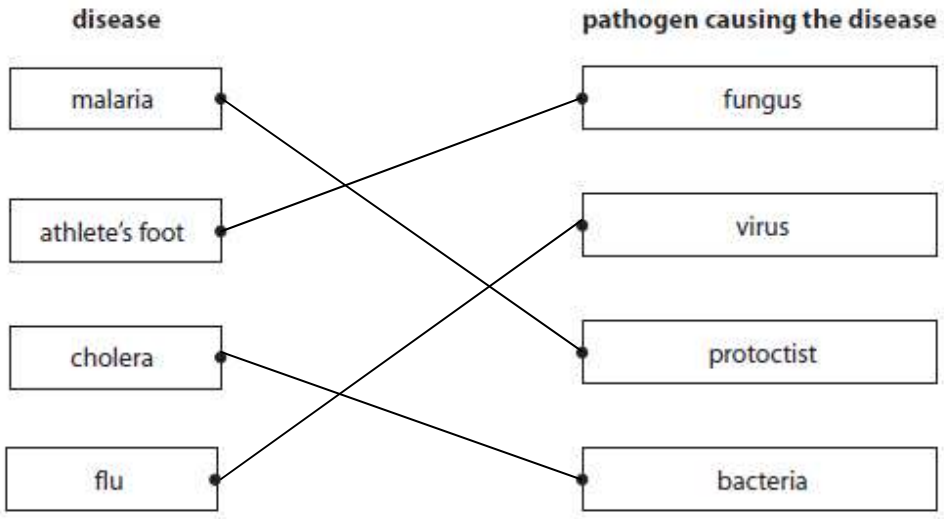
Question number	Answer	Mark
31(b)	**Award one mark for the following** Add an alkali (to neutralise the acidic soil) Accept add lime/slaked lime/ ammonia **Accept any other appropriate response**	**(1)**

Question number	Answer	Mark
32	**Award one mark for the following** Any one from space, water, minerals/nutrients **Accept any other appropriate response**	**(1)**

Question number	Answer	Mark
33(a)	**Award one mark for the following** The limewater turns milky/cloudy **Accept any other appropriate response**	**(1)**

Question number	Answer	Mark
33(b)	**Award one mark for the following** (copper carbonate →) copper oxide + carbon dioxide Accept in either order	(1)

Question number	Answer	Mark
34	**Award one mark for the following** There will be a force of attraction between Magnet A and Magnet B	(1)

Question number	Answer	Mark
35	2 correct 1 mark all correct 2 marks  	(2)

Question number	Answer	Mark
36	**Award one mark for a description that provides the following points up to a maximum of 2 marks** As the temperature increases (1) the time for the reaction to end decreases (1) ORA OR an increase in temperature of 10°C (1) causes the time for the reaction to end to reduce by a half (1) **ORA** **Accept any other appropriate response**	**(2)**

Question number	Answer	Additional guidance	Mark
37(a)(i)	**Award one mark for the following** Y (battery)		**(1)**

Question number	Answer	Additional guidance	Mark
37(a)(ii)	Substitution and Evaluation (1) 12 V/10 Ω = 1.2 Unit (1) A/Amps	Award full marks for an answer without working = 1.2 A	**(2)**

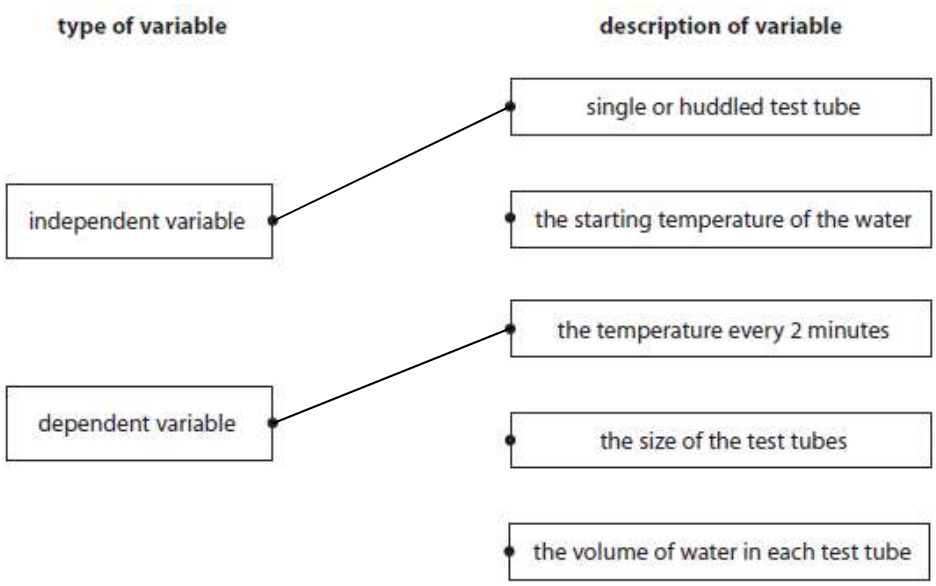
Question number	Answer	Mark
37(b)	**Award 1 mark for identification of the effect on the current in the circuit and 1 mark for a linked expansion up to a maximum of 2 marks** The current in the circuit will increase (1) because the closed switch reduces the (total) resistance of the circuit (1) **Accept any other appropriate response**	**(2)**

Question number	Answer	Mark
38(a)	B → E → D → A → C Two letters in the correct sequence ie ED, DA or AC (1) All letters in the correct sequence (2)	**(2)**

Question number	Answer	Mark
38(b)(i)	Scale of 10 °C for each 1cm square with a range of 0 – 80 °C	**(1)**

Question number	Answer	Mark
38(b)(ii)	**Award one mark or the following** Time in minutes Accept any other appropriate response	**(1)**

Question number	Answer	Mark
38(b)(iii)	**Award 1 mark for the following** (after 10 minutes) the test tube at the centre of the huddle stays at a higher temperature than the test tube on its own. **Accept any other appropriate response**	**(1)**

Question number	Answer	Mark
38(b)(iv)	Award 1 mark for the following  	(1)

Question number	Answer	Mark
39(a)(i)	Award one mark for the following measuring cylinder (1)	(1)

Question number	Answer	Mark
39(a)(ii)	**Award 1 mark for identification that temperature is the independent variable/volume of water is the control variable and 1 mark for a linked expansion up to a maximum of 2 marks** temperature is the independent variable being investigated/ volume of water is a control variable/water kept same to make it a fair test (1) therefore the results/ data would not be valid if the volume of water was changed (1) **Accept any other appropriate response**	**(2)**

Question number	Answer	Mark
39a(iii)	**Award one mark for any one of the following** **Control measure** / **Suitable** / **Not suitable** wear heat resistant gloves / ✓ / label the hot water container "corrosive" / / ✓ place equipment away from the edge of the bench / ✓ / stand up to pour the hot water / ✓ /	**(1)**

Question number	Answer	Mark
39(b)	**Award one mark for any one of the following** measures mass or temperature inaccurately/ incorrectly (1) the solution was not saturated/ not enough solid dissolved (1) the solution was at a lower temperature than required (1) **Accept any other appropriate response**	**(1)**

Question number	Answer	Mark
39(c)(i)	68 ^{o}C +/- 1^{o}C	**(1)**

Question number	Answer	Mark
39(c)(ii)	**Award 1 mark for each of the following up to a maximum of two marks** as the temperature increases the (1) the maximum mass of solid C dissolved in 100 cm^3 of water decreases (1) **Accept any other appropriate response**	(2)

Question number	Answer	Mark
40(a)(i)	11.0 (1)	(1)

Question number	Answer	Mark
40(a)(ii)	**Award 1 mark for identification that the mean is calculated from test 1 and 2 and 2 marks for a linked expansion up to a maximum of 2 marks** The value of 6.0 cm is the average value of the test1 and test 2 bounce height value therefore the student has left out the test 3 bounce height value due to this value being a very different to the other values/an anomaly this is because the value involves a measurement/ experimental error (systematic/random) when taking the reading. **Accept any other appropriate response**	(3)

Question number	Answer	Mark
40(b)	**Award one mark from any one of the following** (other variables that could be investigated) e.g. temperature/ bounce surface/ material of the ball/ type of ball/ size of the ball **Accept any other appropriate response**	(1)

Question number	Answer	Mark
40(c)	**Award one mark from any one of the following** Use a meter ruler with a more detailed scale/mm scale/smaller scale divisions. **Accept any other appropriate response**	(1)

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