

10 C SCIENCE PAPER 2012

/ means OR eg. green / blue – answer needs green OR blue
 () means additional, not really required eg. Gauze (mat) – gauze would be sufficient
 : means AND eg. red : hot - answer needs red and hot.

QUESTION	Evidence	Marks
ONE (a)	water : light : air	1 mark
(b)	temperature / type of lettuce seed / length of time seed left to germinate/number of seeds	1 mark
(c)	self-pollination : <i>and one idea from following</i> same plant but different flower / pollen came from the same genetic information as the ovule / no genetic variation	1 mark
(d)	Any 2 of: no nectaries / not brightly coloured petals / small petals / dull coloured petals / no petals / green petals / long feathery stigma that hang out of the flower / long dangly anthers that hang out of the flower	1 mark
TWO (a)	chloroplast(s)	1 mark
(b)(i)	blue : 420 - 435 nm (number within this range)	
(b)(ii)	green : orange : red	1 mark
(c)	lower (rate) / less photosynthesis reject slower	1 mark
(d)	4/5 points plotted correctly : line joining points is single	1 mark
	ruler not used : line not returned through origin	1 mark
(e)	As distance from the light (source) increases: rate of photosynthesis decreases <i>Accept slower here if gets distance and photosynthesis relationship</i>	1 mark
THREE (a)	air resistance : weight (NOT Gravity)	1 mark
(b)	air resistance (initially zero) is less than weight	1 mark
(c)	it increases (as speed increases)	1 mark
FOUR (a)	atomic # Z : mass # A : symbol X	1 mark
(b)	X : Y (either order) : one of	1 mark
	<ul style="list-style-type: none"> • same number of protons (in nucleus) but a different number of neutrons • same atomic number but a different mass number 	
FIVE (a)	friction / rubbing the rod with a cloth or other suitable material (NOT a charged object)	1 mark
(b)	friction between the bottles and rubber (belt) makes them charged	1 mark
(c)	(wire) can't earth the bottles since rubber belt is not a conductor/is an insulator	1 mark

SIX (a)	(i) S1 AND (ii) S1 and S3	1 mark
(b)	closing S1 turns on the fan. a heater requires S1 and S2/S3 so the fan is also on when a heater is on.	1 mark 1 mark
SEVEN (a)	Richard : Jenny (either order)	1 mark
(b)	less red blood cells (available) to carry oxygen / less oxygen can be carried around the body	1 mark
(c)	(out) oxygen : (in) carbon dioxide	1 mark
(d)	(3) different elements : joined by chemical bonds / chemically joined	1 mark
(e)	C ₁₀ H ₁₄ N ₂ / any order of CHN is acceptable as long as correct number of atoms	1 mark
EIGHT (a)	river / stream / wave motion where rocks were forming	1 mark
(b)	igneous rock / lava : moved up through layers to reach the top faulting occurred : rocks have moved in different directions (to each other)	(a) : 1 idea from (b) BUT 2 marks: (a) : 2 ideas from (b)
(c)	metamorphic : heat from the igneous basalt (rock) / pressure coming from the layers of rock above	1 mark
(d)	divergence / plates are moving away from each other in opposite directions	1 mark
(e)	subduction : the continental plate is lighter (less dense) than the oceanic plate (or vice versa)	1 mark
(f)	160 : seconds / s	1 mark
(g)	line is straight / line has constant gradient / line covers the same distance in the same time for each section	1 mark
NINE (a)	add nitric acid and then silver nitrate solution	1 mark
(b)	blood type : DNA from the other cells NOTE: no marks if "DNA from RBC"	1 mark
(c)	(place) samples on (pencil) line near the bottom of the chromatography paper put in the solvent : level must be below sample* solvent rises up the paper carrying the smaller particles further / separating out the particles by size calculate the R _F value <i>Any two ideas and *idea</i>	1 mark 1 mark*
(d)	<u>man B</u> <i>and any two ideas as long as there is a <u>comparison</u> involved for each idea</i> <ul style="list-style-type: none"> Child 17, 19, 22, 24 match mothers 25,28, 30 & 31 dna segments / identified lines in the same places Child 18,20,21,23 matches Man B 10,12,13,14 in the right width and places Man A has 1 and 6 bands that are thick / 7, 5, 4, 3 1 with no corresponding points on child (or has more non matching DNA) 	1 mark 1 mark 1 mark
		40 marks

