

2015 10 BC

/ 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			
One	(a)	(i) Any 3 hazards circled	1 mark
		(ii) Any one correct outcome identified for a named hazard e.g. fire due to sockets overheating, electrocution due to metal screwdriver in live socket etc. Should include a consequence and not just 'toaster could fall in the sink' for eg	1 mark
	(b)	C	½ mark
	(c)	C	½ mark
	(d)	Switch 1 : <i>correct reason why</i> e.g. motor circuit needs to be complete	½ mark + ½ mark
	(e)	All : <i>correct reason why</i> e.g. switch 2 needs to be closed to complete the heater circuit and switch 1 for motor and heater to work as they are in parallel	½ mark + ½ mark
Two	(a)	84	1 mark
	(b)	B	1 mark
	(c)	C	1 mark
	(d)	Z : at any/all temperatures it had the slowest/longest time	½ mark + ½ mark
	(e)	D	1 mark
Three	(a)	Colour of light. Not just 'the light'	1 mark
	(b)	Any 2 relevant variables e.g amount of weed, water temperature, light intensity, amount of sodium (bi) carbonate (oops). Not just unqualified 'same water' or 'light' or similar.	1 mark each - max of 2 marks
	(c)	Results have been averaged / repeats have been done Obvious outlier / anomalous result / "2 for blue light" has been omitted	½ mark 1 mark
	(d)	Any correct statement e.g. photosynthesis is slowest under green light	1 mark
	(e)	A	½ mark
Four	(a)	Any one of no obvious petals, no nectary, has feathery stigma, has dangly stamens, pollen on the outside of flower etc BUT NOT no scent or no nectar. Must use correct vocabulary, ie can't write 'has feathery things outside flower to catch pollen' etc	1 mark
	(b)	No scent / no nectar / usually green	1 mark
	(c)	Pollen is carried in the air/wind AND is breathed by/comes into contact with people	1 mark

	(d)	31 - 22 : 9°C	½ mark + ½ mark
	(e)	germinating seeds produce heat / dead seeds don't produce heat	1 mark
Five	(a)	hydrogen peroxide is liquid/solution / is in funnel: manganese dioxide powder is solid OR need to swap labels for manganese dioxide and hydrogen peroxide over	1 mark
	(b)	bung / stopper / cork	1 mark
	(c)	so gas doesn't escape / to hold funnel and tube in place	1 mark
	(d)	calcium : chloride or salt ½ mk	½ mark + ½ mark
	(e)	bubble gas through : turn white / cloudy / milky	½ mark + ½ mark
Six	(a)	X somewhere by seat in front of bullet and untouched coffee	½ mark
	(b)	dust with a named / black / white / powder lift with tape / photograph	1 mark 1 mark
	(c)	loop . arch	½ mark + ½ mark
	(d)	6	½ mark
Seven		Any errors e.g. y axis uneven, y axis upside down, no label for y axis, points not plotted with x's, point plotted incorrectly, smooth line / curve of best fit not drawn, poor use of available graph paper, graph had no title etc	5 errors = 3 marks; 3-4 errors 2 marks, 1-2 errors 1 mark
Eight	(a)	D	1 mark
	(b)	calcium : magnesium	½ mark + ½ mark
	(c)	zinc or Fe	1 mark
	(d)	Ca Mg Zn Fe Cu NOTE: 2 errors ½ mark	1 mark
Nine	(a)	Paint is insoluble in water (or what would happen to your car when it rained?)	1 mark
	(b)	D : matches pattern of paint A on chromatogram	1 mark
	(c)	Any sensible answer e.g. check and see if paint from courier van matches pattern of spots	1 mark
Ten	(a)	removed: drawing pin, iron nail remained: glass marble, eraser, copper coin, gold ring	5-6 correct 2 marks, 3-4 correct 1 mark
	(b)	No : answer justified e.g. second strongest magnet was the large magnet B	½ mark + ½ mark
	(c)	length of rubber band / distance between iron ball and magnet	1 mark
	(d)	(i) iron filings or compass (ii) left hand side diagram	½ mark ½ mark

Eleven	(a)	Any correct similarity e.g both travel through the mantle / they are both body waves (there will be other answers so please check)	½ mark
	(b)	Any correct difference e.g P travel faster than S (there will be other answers so please check)	½ mark
	(c)	3 : minutes	½ mark + ½ mark
	(d)	2750 km (+ or - 5)	1 mark
	(e)	Location is where circles intersect; if you have 2 stations then 2 intercepts - 2 possible locations	1 mark
	(f)	(i) where line from distance / S-P time and amplitude crosses the magnitude scale	1 mark
		(ii) 4	1 mark
Twelve	(a)	Any correct difference e.g lumen of vein > lumen of artery / muscle of artery > muscle of vein (there will be other answers so please check)	½ mark
	(b)	(i) M / C (ii) A (iii) L / N (iv) J	½ mark each: max of 2 marks
	(c)	(i) 0.3 s (ii) 3	½ mark + ½ mark
	(d)	4 minutes (from 2 to 6 minutes)	1 mark
	(e)	Any 2 of: lower resting rate, lower rate during exercise, faster recovery time	½ mark + ½ mark
	(f)	1 and 4	½ mark
Thirteen	(a)	(i) C (ii) A	1 mark + 1 mark
	(b)	ethanol is flammable chlorophyll	½ mark ½ mark
	(c)	xylem is ticked water (and mineral ions) is only transported from root to leaves for photosynthesis (or need 2 way transport of food)	½ mark ½ mark
Fourteen	(a)	(i)13 (ii)1.4 (iii) 25 mL	3 correct = 2 marks, 1-2 correct = 1 mark
	(b)	@ 20 mL indigo @ 35 mL red	½ mark ½ mark
	(c)	y-axis scale to 5 (evenly spaced) Points plotted (at least 5 correct) freehand line drawn back to (0.0)	1 mark 1 mark
	(d)	Any suitable value drawn from their graph - probably 4.6 - 4.7 (as reaction slowing down / may have stopped)	1 mark
	(e)	react with it / dissolve it (accept erode or corrode) not melt accepted change shape over time and other answers describing a	1 mark

		visual change in appearance but not mould or colour changes	
Fifteen	(a)	avoid competition : for nutrients / light / water / resources (Do NOT accept FOOD) Avoid lack of space colonisation of new environments better chance of survival if spread out if one area struck by disease	½ mark ½ mark
	(b)	X = D coconut / seed is dispersed by water - floats - will wash up by beach/tide etc Y = B / C B: hooks attach to animals / birds / man - picked off/fall off elsewhere C: hair like structure means they are distributed by wind/air currents Z = A pod explodes and seeds are flung around the immediate area looking for <u>link between seed feature and dispersion mode linked to pattern on map</u> for full marks. Awarded discretionary PJ score for good well answered questions that did not match markscheme	1 mark 1 mark 1 mark
Sixteen	(a)	Shiny black = 70, dull black = 87, shiny silver = 47	1 mark
	(b)	Correct statement about emission e.g. Black is a better emitter than silver Dull(surfaces) are better emitters than shiny Different surfaces give off different amounts of radiation (1 mark)	1 mark 1 mark
	(c)	Black is better absorber of heat air expands - (pressure) pushes air down so h decreases	½ mark ½ mark
Seventeen	(a)	B2 will light, B1 not / <u>only</u> B2 will light	½ mark
	(b)	Three key ideas... No it will not light up. Once S2 is closed the circuit will be complete - and electromagnet will <u>attract</u> steel pin in contestant A's circuit so even if contestant 1 closes switch S1 his lamp will not light	1 mark 1 mark 1 mark
	(c)	Can be turned on and off / can be more powerful than permanent / uses electricity which needs to be paid for (permanent doesn't)	½ mark
Eighteen	(a)	gondwana / gondwanaland	1 mark
	(b)	Any 2 of similar rock types / similar fossils / matching shape coastlines Did NOT accept "same shape" as "complementary shapes" or just "like a puzzle"; needed	½ mark ½ mark
	(c)	Z between dot and FFF on Africa	½ mark
	(d)	metamorphic sedimentary magma sediment igneous	4-5 correct = 2 marks 2-3 correct = 1 mark
	(e)	(i) slide 1	½ mark

		(ii) rock chosen and crystal size (or lack of) related to cooling rate e.g. obsidian is lava [what] that cooled very fast so it is glassy/has no crystals [how] e.g. granite is magna [what] that cooled slowly underground and so has large crystals [how]. Answer needed link to where formed and how this affected rate/speed of cooling to explain crystal size or lack of crystals.	1 mark for what, how cooled and effect on rock - allow ½ for partial answer
Nineteen	(a)	gall bladder liver hi large intestine stomach small intestine pancreas If a student did more than 3 answers every wrong cancelled out a right answer. The instructions were VERY clear to label any 3 (and the consequences of any additional wrong answers).	3 correct = 1 mark; 2 correct = ½ mark
	(b)	Concentration of glucose (in the distilled water) increases up to 20 minutes	½ mark
		then stays constant NOTE: cannot just say "it"	½ mark
	(c)	starch is digested/broken down by the enzyme / amylase	½ mark
glucose/sugar passes through / diffuses through (visking) tubing into the distilled water		½ mark	
(d)	Strengths- any 2 of model has amylase model has a thin permeable membrane in the model the glucose diffuses out Weaknesses- any 2 of the model membrane is not one cell thick the model has no peristalsis the model does not have villi / a large SA in the model there is water instead of blood Students may have been penalised for ticking more than 4 especially if more wrong than right. Some PJ marking was applied	½ mark ½ mark ½ mark ½ mark	