

Applied Science (Double Award)

General Certificate of Secondary Education **B482/01**

Foundation

Mark Scheme for June 2010

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Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

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Question			Expected answers	Mks	Additional guidance
1	a	i	left side: (cell) membrane; right side: cytoplasm; (cell) wall;	3	Allow (1) if cell wall and cell membrane are reversed on diagram.
		ii	chloroplast; cell wall; (large permanent) vacuole	any 2	Ignore chloroPHYLL
		iii	nucleus	1	Allow chromosomes / DNA Ignore genes
		iv	chloroplast;	1	Allow chlorophyll
	b		characteristics; cross breed; offspring;	3	
Total				10	

Question			Expected Answers	Marks	Additional Guidance
2	a	i	fractional distillation	1	
		ii	(F)FTFT	3	Look at <u>bottom four boxes only</u> 4 correct = 3 3 correct = 2 2 correct = 1 1 correct = 0
	b	i	carbon; hydrogen	2	
		ii	a mixture of compounds	1	
	c		dyes; plastic packaging;	2	
	d		<i>advantage:</i> jobs / trade / training/ brings money into area; <i>disadvantage:</i> traffic / waste / noise / dust / eyesore / <u>named</u> environmental problem eg oil spill / contamination of watercourse	2	Ignore 'harms the environment' or 'causes pollution' or 'harms habitats' or 'harms wildlife' ideas
Total				11	

Question		Expected Answers	Marks	Additional Guidance
3	a	no need to wake him up / readings can be taken more often / readings not missed / nurse doesn't have to do it / automatic / it is recorded / regular readings idea eg 'all the time' or 'through the night'	1	Ignore accuracy / precision
	b	i falls / goes down	1	
		ii 2 o'clock / 14.00 body temp starts rising / body temperature stops falling	2	Allow '14'
	c	i line across at 37	1	
		ii it is lower	1	ecf if line not on 37°C
	d	i respiration	1	
		ii breathing rate; pulse rate	2	

Question		Expected Answers	Marks	Additional Guidance
3	e	<p>direct contact between people eg touching / kissing;</p> <p>contact with objects eg sharing cups etc.;</p> <p>through the air / breathing it in idea / coughing / sneezing;</p> <p>through a cut / break in the skin;</p> <p>from body fluid eg spit / blood /sweat / semen</p>	any 2	<p>Ignore 'near' ideas eg in the same room</p> <p>Allow 'close contact'</p>
Total			11	

Question		Expected Answers	Marks	Additional Guidance
4	a	TTF F	2	all four correct = 2 2/3 correct = 1 1 correct = 0
	b	cheaper <u>to run</u> / cheaper <u>per mile</u> / more <u>energy</u> efficient;	1	
	c	only goes 48 miles between charging / needs charging after a short journey / needs charging more often; takes a long time (over 30 minutes) to charge; not many charging stations / only 60 stations in the UK; top speed is only 50 mph / low (top) speed;	2	Allow 'about 50' miles. Allow 'refill' for charging. Ignore 'have to keep refilling it' Allow needs recharging after a short <u>time</u> . Allow 'slower'
	d	<i>input:</i> electrical; <i>output:</i> movement (top); heat (bottom)	3	Allow (1) for movement and heat in wrong order.
Total			8	

Question		Expected Answers	Marks	Additional Guidance
5	a	solution	1	
	b	liquid gas; gas liquid; both lines in correct order (3) liquid / gas either order line 1 (1) liquid / gas either order line 2 (1)	3	
	c	i	any 2	<p>Ignore 'less waste' or 'saves wasting metals'</p> <p>saves metals alone = 0 Accept making named product eg new spray can. Ignore 're-using the spray can' or 're-using it' alone</p> <p>Ignore carbon footprint arguments / litter Ignore references to the environment or less pollution</p> <p>Ignore cheaper</p>
		<p>saves (space in) landfill;</p> <p>saves metal resources / metal can be used to <u>make</u> new products / re-use the <u>metal</u>;</p> <p>metals will run out;</p> <p>no need to mine more;</p> <p>recycling uses less energy</p>		

Question			Expected Answers	Marks	Additional Guidance
5		ii	have to separate /sort materials / idea that it is a mixture / not just metals / made of different metals / alloy / still contains <u>gas</u> / pressurised idea	1	Ignore 'explosion' or 'flammable' alone Ignore liquids / other contents inside the can
	d	i	carbon / C <u>and</u> hydrogen / H (1)	1	need both Do not accept h or H ₂ or CH ₃ / CH ₂ etc
		ii	(below) boiling point / 16°C; turn to liquid; gas does not force contents out / less pressure (in can)	2	Ignore references to solids
Total				10	

Question			Expected Answers	Marks	Additional Guidance
6	a	i	idea of movement ; plates (tectonic);	2	Allow 'continental drift' or 'continents move' for first mark Allow 'separate' for 'move' Allow 'breaks <u>away</u> ' or 'splits <u>away</u> ' but not 'breaks' or 'splits' alone.
		ii	mountain / ocean formation;	1	Reject short term changes eg earthquakes / volcanoes / erosion / environmental effects Ignore land formation / sea level change
	b	i	photosynthesis	1	
	c	i	respiration / breathing / needed for energy (in the body);	1	
		ii	greenhouse effect; keeps planet warm / global warming;	2	Accept 'plants photosynthesise' for 1 mark only

Question			Expected Answers	Marks	Additional Guidance
6	d	i	the Sun; planets / named planet or planets; moons / asteroids / comet / satellites;	2	Reject stars / galaxies / black holes; Ignore Earth Ignore meteor Ignore 'space' Apply the list principle
		ii	The 'big bang'	1	
Total				10	

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