
SCIENCE

1113/02

Paper 2

October 2016

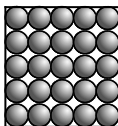
MARK SCHEME

Maximum Mark: 50

This document consists of **12** printed pages.



Question number	1		
Part	Mark	Answer	Further Information
(a)	1	four	
(b)	1	they put the energy into the food chain.	<p>Accept they make their own food</p> <p>Accept can photosynthesise</p> <p>Ignore they are at the start of the food chain</p>
(c)	2	<p>increase</p> <p>fewer of them are being eaten (by the cod)</p>	<p>Accept they will overpopulate</p> <p>Accept fewer or none of their predators left</p> <p>Accept cod is a predator of shrimp / shrimp is the prey of cod</p>
Total	4		

Question number	2		
Part	Mark	Answer	Further Information
(a)	1	8	Accept any value between 7.9 and 8
(b)	3	<p>The water particles gain more kinetic energy.</p> <p>The particles move faster.</p> <p>This causes the particles to spread out.</p>	<p>each correct word = 1 mark</p> <p>Do not accept heat</p> <p>Accept (further) apart / quicker / more rapidly / more vigorously</p> <p>Accept evaporate</p>
(c)	2	<p>all particles touching or almost touching</p> <p>particles in rows / particles in a set pattern</p>	 <p>There must be an attempt to draw the spheres touching</p> <p>the box does not need to be full</p>
Total	6		

Question number	3		
Part	Mark	Answer	Further Information
(a)	2	<p>The diagram shows a light source on the left emitting three rays that pass through a vertical slit. These rays then pass through a triangular prism. The rays are dispersed into a fan shape labeled as a spectrum. Labels with leader lines point to the light source, slit, light ray, prism, and spectrum.</p>	<p>five correct = 2 marks</p> <p>two, three or four correct = 1 mark</p> <p>one correct = 0 marks</p>
(b)	1	<p>blue green red white yellow</p>	<p>more than one answer ringed = 0 marks</p>
(c)	1	<p>X anywhere within the prism</p>	
Total	4		

Question number	4		
Part	Mark	Answer	Further Information
(a)	2	<p style="text-align: center;"> food item main type of nutrient <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">meat</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">bread</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">lettuce</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">butter</div> </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">carbohydrate</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">fat</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">protein</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">roughage (fibre)</div> </div> </div> </p>	<p>four correct links = 2 marks</p> <p>two or three correct links = 1 mark</p> <p>one correct link = 0 marks</p> <p>Accept bread to roughage</p>
(b)	2	<p>provides all the nutrients</p> <p>(idea of) in the correct proportions</p>	<p>must have both ideas for 2 marks</p> <p>Accept provides the nutrients in the food pyramid / provides every type of nutrient</p> <p>Accept in the right amount / in the appropriate amount / adequate amount / in the proper amounts / suitable amounts</p>
Total	4		

Question number	5		
Part	Mark	Answer	Further Information
(a) (i)	1	more gas is collected when the concentration is higher	Accept quoting data i.e. two concentrations and two volumes Accept ora
(ii)	2	more particles per unit volume / particles are closer together / particles are more crowded more collisions	Accept more frequent collisions = 2 marks Ignore references to particles moving faster / having more energy Do not allow collides faster
(b)	1	repeat them / increase the range of concentration / do more concentrations	Accept measure the gas volume for a longer time period
Total	4		

Question number	6		
Part	Mark	Answer	Further Information
(a)	1	C	
(b)	2	C E	either order
(c)	1	A, B and D	all three required any order
Total	4		

Question number	7		
Part	Mark	Answer	Further Information
(a)	2	<p>Any two from</p> <p>percentage or number of smokers has decreased</p> <p>percentage or number of female smokers has decreased</p> <p>percentage or number of male smokers has decreased.</p> <p>males have decreased more than females.</p> <p>more male smokers than females</p> <p>rate of decrease has slowed down for both sexes.</p>	<p>Accept graphs show the same pattern / line(s) decrease / all the graphs decrease = 1 mark</p> <p>Accept the rate of decrease gets smaller = 1 mark</p>
(b)	1	decline in number or % of smokers (means less risk of lung cancers.)	Accept idea that the % of heavy smokers is probably falling
Total	3		

Question number	8		
Part	Mark	Answer	Further Information
(a)	2	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-between; width: 100%;"> <div style="border: 1px solid black; padding: 2px 10px;">aluminium and copper chloride</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"><input checked="" type="checkbox"/></div> </div> <div style="display: flex; justify-content: space-between; width: 100%; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 10px;">copper and potassium chloride</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"><input type="checkbox"/></div> </div> <div style="display: flex; justify-content: space-between; width: 100%; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 10px;">gold and silver nitrate</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"><input type="checkbox"/></div> </div> <div style="display: flex; justify-content: space-between; width: 100%; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 10px;">lead and copper chloride</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"><input checked="" type="checkbox"/></div> </div> <div style="display: flex; justify-content: space-between; width: 100%; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 10px;">tin and zinc chloride</div> <div style="border: 1px solid black; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center;"><input type="checkbox"/></div> </div> </div>	<p>each correct tick = 1 mark</p> <p>three ticks and two correct = 1 mark</p> <p>three ticks and one correct = 0 marks</p> <p>four or five ticks = 0 marks</p>
(b)	(i)	1	hydrogen / H ₂ Accept H
	(ii)	1	exothermic
Total		4	

Question number	9		
Part	Mark	Answer	Further Information
(a)	2		<p>all correct = 2 marks</p> <p>two correct = 1 mark</p> <p>one correct = 0 marks</p> <p>Accept arrow anywhere on individual magnets</p>
(b) (i)	1		<p>Accept arrow anywhere on the field line</p>
(ii)	1	<p>at least two correct line(s) and correct arrow = 1 mark</p>	<p>Do not accept contradictory arrows</p> <p>Do not accept lines that cross each other</p>
Total	4		

Question number	10		
Part	Mark	Answer	Further Information
	2	<p>Any two from</p> <p>(idea of) less food (production) / less photosynthesis</p> <p>less light / dimmer light / colder / less CO₂ / less water</p> <p>Mars is further away from the Sun (than the Earth)</p>	<p>Accept answers wherever they are written</p> <p>answer must be a comparison</p> <p>Accept no photosynthesis / no food (production)</p> <p>answer must be a comparison</p>
Total	2		

Question number	11		
Part	Mark	Answer	Further Information
(a)	1	C	
(b)	1	E	
(c)	1	D	
Total	3		

Question number	12		
Part	Mark	Answer	Further Information
(a)	1	clockwise moment equal to anti-clockwise moment / both have the same moment / both have same turning force / both boys are the same distance from the pivot and the same weight / calculation of $400 \times 3 = 400 \times 3$	<p>Accept both boys are 3m from the pivot and have a weight of 400 N</p> <p>Accept both have the same length and force</p> <p>Do not accept mass instead of weight or force but ignore mass if correct reference to moment or turning force</p>
(b)	1	the see saw tips (to the right) / does not balance	<p>Accept Mike will go down or Ahmed will go up</p> <p>Accept moves clockwise</p>
(c)	1	balances	<p>Accept neither Mike nor Ahmed will go up and down</p> <p>Accept stays the same / does not move</p>
(d)	1	the see saw tips (to the left) / does not balance	Accept Ahmed will go down
Total	4		

Question number	13		
Part	Mark	Answer	Further Information
(a)	1	reptile	
(b)	1	arthropod	
(c)	1	mammal	
(e)	1	amphibian	
Total	4		