

SCIENCE

1113/02

Paper 2

October 2016


MARK SCHEME

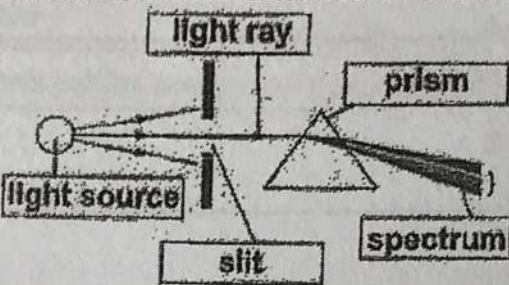
Maximum Mark: 50

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.	Accept they make their own food Accept can photosynthesise Ignore they are at the start of the food chain
(c)	2	increase fewer of them are being eaten (by the cod)	Accept they will overpopulate Accept fewer or none of their predators left Accept cod is a predator of shrimp / shrimp is the prey of cod
<b>Total</b>	<b>4</b>		

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 <b>kinetic</b> energy.</p> <p>The particles move <b>faster</b>.</p> <p>This causes the particles to <b>spread</b> 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>
<b>Total</b>	<b>6</b>		

Question number	3		
Part	Mark	Answer	Further Information
(a)	2	 <p>The diagram shows a light source on the left emitting a light ray through a vertical slit. The light ray then passes through a triangular prism. On the right side of the prism, a spectrum is formed, shown as a fan of colored rays. Labels with boxes 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	blue green red <u>white</u> yellow	more than one answer ringed = 0 marks
(c)	1	X anywhere within the prism	
Total	4		

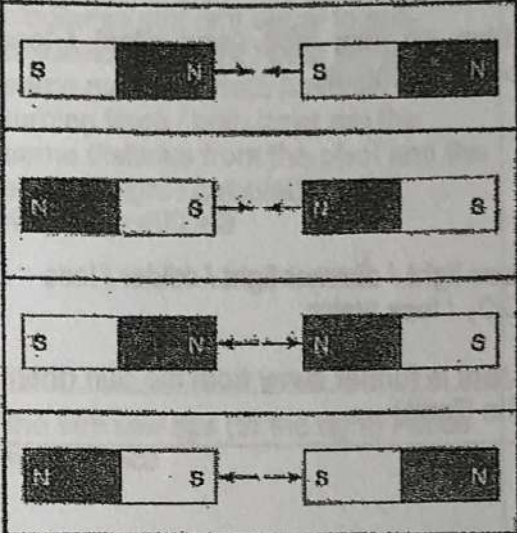
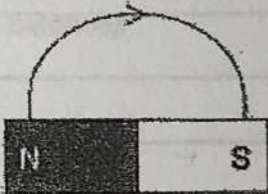
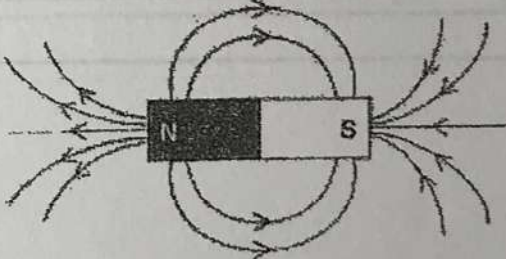
Question number	4		
Part	Mark	Answer	Further Information
(a)	2		<p>four correct links = 2 marks</p> <p>two or three correct links = 1 mark</p> <p>one correct link = 0 marks</p> <p>Accept bread to roughage</p>
(b)	2	<p>provides all the nutrients</p> <p>(idea of) in the correct proportions</p>	<p>must 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
<b>Total</b>	<b>4</b>		

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

Question number	8			
Part	Mark	Answer	Further Information	
(a)	2	<div style="display: flex; flex-direction: column; gap: 10px;"> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">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; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">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; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">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; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">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; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">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 <sub>2</sub>	Accept H
	(ii)	1	exothermic	
<b>Total</b>		<b>4</b>		

Question number	9		
Part	Mark	Answer	Further Information
(a)	2		<p>all correct = 2 marks                      two correct = 1 mark                      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 CO<sub>2</sub> / 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>
<b>Total</b>	<b>2</b>		

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

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

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