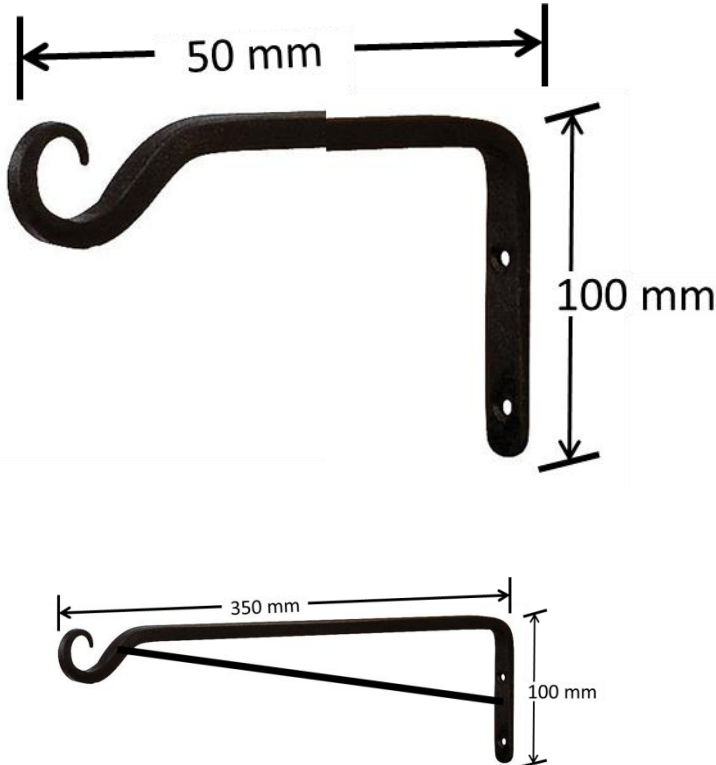


	b	<p>The students can sketch one of the following:</p> 	3
4		<p>Marks should be awarded as follows: 2 marks for Originality; 1 mark for Clarity of idea; 1 mark for colour; 1 mark for materials; 1 mark for Finish.</p>	6
5		<p>(i) To check the product how it is going to work, and if it works according to plan. (ii) To check if the chosen materials and sizes are good. (iii) To see what others have to say about the product.</p>	3

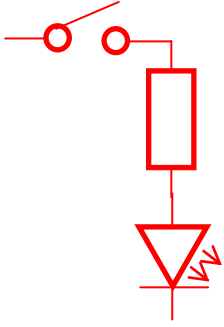
SECTION B: RESISTANT MATERIALS

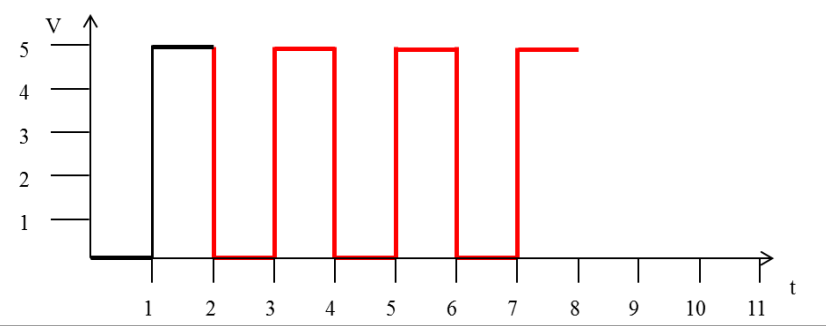
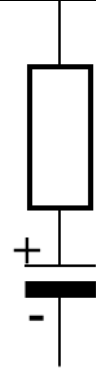
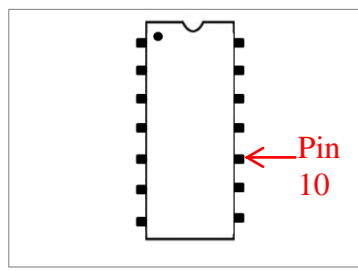
QUESTION NUMBER	ANSWER	MARKS ALLOTTED
6	<p>a During injection moulding, plastic <i>granules</i> are inserted inside a barrel and <i>heated</i>. A <i>screw/force</i> inside the barrel pushes the material inside a mould. Once the plastic has cooled down, the <i>mould</i> is opened and the resulting product removed.</p>	$\frac{1}{2} \times 4 = 2$
	<p>b Vacuum forming is a process whereby a heated plastic sheet is shaped over a mould by the use of air suction.</p>	1
	<p>c Vacuum forming is more cost-effective for one-off production.</p>	2
	<p>d The joint has to be temporary so as to have access to internal parts.</p>	2

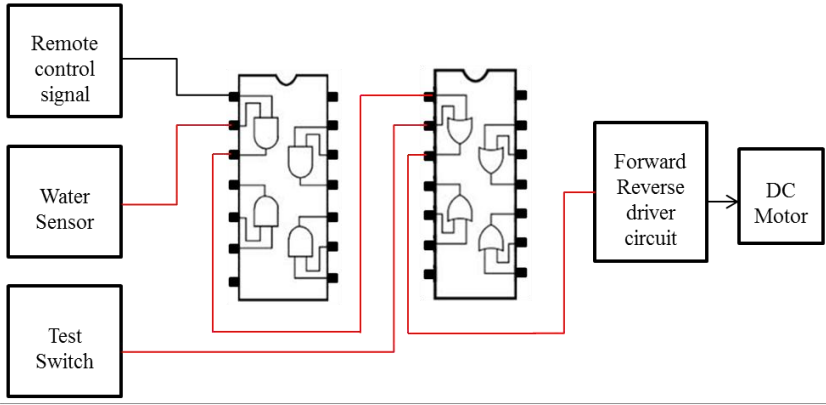
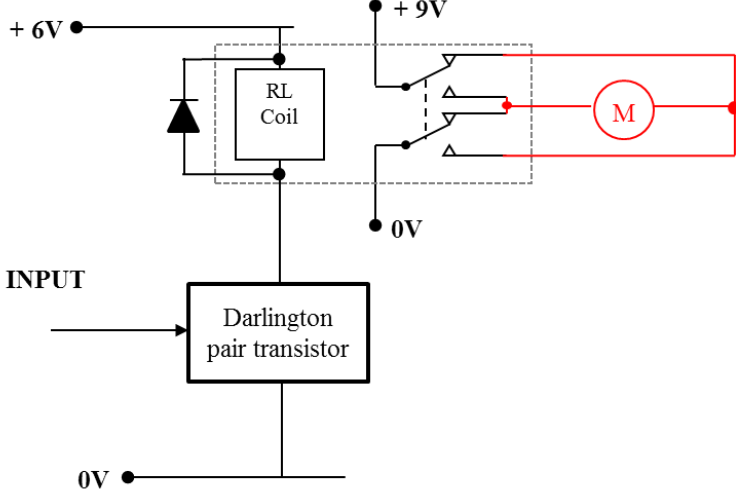
7	a	copper & zinc	$\frac{1}{2} \times 2 = 1$
	b	Metals are combined to enhance their properties.	1
	c	material does not react with chemicals found in the environment	1
8	a	reduction gears/gears	1
	b		2
	c		1
	d		i. rotary motion; ii. reciprocating motion
9	a	The fixed pivot gives a point on which the lever can turn.	1
	b	third-class lever	1
	c	Students should draw a pear-shaped cam. <i>Award 1 mark for correct profile and 1 mark for labelling the camshaft.</i>	2

SECTION C: ELECTRONICS

QUESTION NUMBER	ANSWER		MARKS ALLOTTED	
10	a	Printed Circuit Board	1	
	b	i	soldering iron	$\frac{1}{2}$
		ii	<i>Any one of the following or other relevant answer.</i> <ul style="list-style-type: none"> • Never inhale toxic gases. • Never touch the soldering bit with hands. • Always place the soldering iron in the soldering iron stand when not in use. 	$\frac{1}{2}$
	c	Meaning: It is a material that allows electricity to flow through it. Example: <i>Any one of the following or other relevant answer:</i> Copper, Gold, Aluminium	1	

11	a	<p><i>Note: Voltage for ONE AA secondary type battery = 1.2V. Award full marks also if 1.5V is used instead of 1.2V.</i></p> $V_t = V_1 + V_2 + \dots + V_8$ <p>Since all batteries have similar batteries then</p> $V_t = 8 \times 1.2V$ $V_t = 9.6V$ <p><i>Or for 1.5V</i></p> $V_t = 8 \times 1.5V$ $V_t = 12V$	1
	b	<p>i</p>  <p>ii</p> $R = V / I$ $R = (9.6V - 2.1V) / (20mA \times 10^{-3})$ $R = 7.5V / 0.02A$ $R = 375\Omega$ <p><i>Or for 1.5V</i></p> $R = V / I$ $R = (12V - 2.1V) / (20mA \times 10^{-3})$ $R = 9.9V / 0.02A$ $R = 495\Omega$ <p><i>Award 1½ marks for correct method used and ½ mark for correct answer. Note: Award full marks even if the calculated V_t in question 1b is incorrect as long as the working is correct.</i></p>	1
	b	<p>ii</p> $R = V / I$ $R = (9.6V - 2.1V) / (20mA \times 10^{-3})$ $R = 7.5V / 0.02A$ $R = 375\Omega$ <p><i>Or for 1.5V</i></p> $R = V / I$ $R = (12V - 2.1V) / (20mA \times 10^{-3})$ $R = 9.9V / 0.02A$ $R = 495\Omega$ <p><i>Award 1½ marks for correct method used and ½ mark for correct answer. Note: Award full marks even if the calculated V_t in question 1b is incorrect as long as the working is correct.</i></p>	3
12	a	It is a waveform that continuously switches from mark to space periods until it is interrupted.	1

	b	 <p style="text-align: center;">Figure C</p>	1																																
	c i		1																																
	ii	$T = R \times C$ $T = (100 \times 10^3) \times (1000 \times 10^{-6})$ $T = 100s$ <p><i>Award full marks only if both method and answer are correct.</i></p>	2																																
13	a	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Remote Signal</th> <th>Water sensor</th> <th>Test switch</th> <th>DC Motor</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> <td style="color: red;">1</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> <td style="color: red;">0</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td style="color: red;">1</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> <td style="color: red;">1</td> </tr> </tbody> </table>	Remote Signal	Water sensor	Test switch	DC Motor	0	0	0	0	1	1	1	1	1	1	0	1	1	0	0	0	0	1	0	0	1	0	1	1	0	1	1	1	$\frac{1}{2} \times 4 = 2$
Remote Signal	Water sensor	Test switch	DC Motor																																
0	0	0	0																																
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0	1	1	1																																
	b i	Integrated Circuit	$\frac{1}{2}$																																
	ii	 <p style="text-align: center;">Figure A</p>	$\frac{1}{2}$																																

	<p>c</p>  <p style="text-align: center;">Figure J</p>	$\frac{1}{2} \times 4 = 2$
	<p>d</p>  <p style="text-align: center;">Award 1 mark for correct use of motor symbol. Award 1 mark for correct electronic design.</p>	2

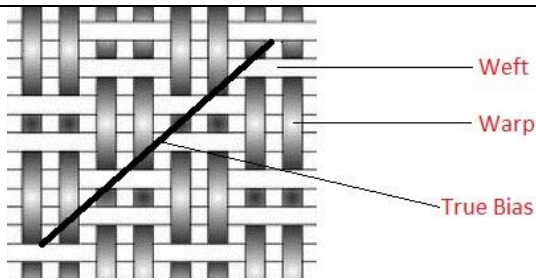
SECTION D: FOOD

QUESTION NUMBER	ANSWER	MARKS ALLOTTED
14	<p>a</p> <p><i>Any three of the following or other relevant answers:</i></p> <ul style="list-style-type: none"> • Problems with teeth and dentures • Loose of appetite • Low income • Medical problems/have to follow special diets • Poor mobility • The sense of taste and smell changes 	3

	b	<i>Any two of the following or other relevant answers:</i> <ul style="list-style-type: none"> • Carry out a survey in an elderly home • Interview elderly people/doctor • Organise a tasting panel of food made with different ingredients • Analyse existing products made with suitable ingredients. 		2		
	c	<i>2 marks will be given for the drawing and labeling of the meal,</i> <i>3 marks are given if the food suggested:</i> <ul style="list-style-type: none"> • is healthy, • is suitable for an elderly person • has a soft texture • is high in protein • is high in fibre • is high in calcium 		5		
15	a	Example – Vegetables (carrots, broccoli, potatoes etc.) – Cooking method – steaming Reason – better flavour, retain vitamins		2		
	b	Conduction; Convection; Radiation		3		
16		1	Eating food high in calcium	2	prevent digestive problems.	5
		2	A diet rich in fibre can	4	important for people suffering from coronary heart disease.	
		3	Too much salt in the diet	1	helps to avoid osteoporosis.	
		4	Low saturate fat meals are	5	tired and irritable.	
		5	A lack of iron can make you feel	3	can raise the blood pressure.	

SECTION E: TEXTILES

QUESTION NUMBER	ANSWER	MARKS ALLOTTED
17	<i>Any two from the following:</i> <ul style="list-style-type: none"> - passing unwanted clothes/products on to someone else, either by handing them down through the family or to a charity institution. - Some materials can be shredded and remade into new fabrics. Wool fibres can be obtained in this way. - Some synthetic fibres can be regenerated into a completely new fabric. 	2 x 2 = 4

18	<i>Any two from the following:</i>		2 x 2 = 4
	Name	Describe	
	Darts	Triangular markings on fabrics stitched to the inside.	
	Gathering	Very small tucks in fabric put in by a hand running (small basting) stitch or large machine stitch.	
	Pleats	Folds in fabrics	
	Smocking	Decorative stitching worked over small regular tucks in fabric, elastic thread must be used.	
	Tucks	Unpressed small pleats	
19	<i>Any two from the following:</i>		2
	<ul style="list-style-type: none"> - Zip - Velcro - Press studs - Ribbon ties 		
20	<i>Any two of the following:</i>		2
	<ul style="list-style-type: none"> - Felt - Vilene - Dacron 		
21	a	Hopsack Weave	2
	b	 <p>The diagram shows a grid of threads representing a hopsack weave. A diagonal line is drawn across the grid, labeled 'True Bias'. Labels 'Weft' and 'Warp' point to the horizontal and vertical threads respectively.</p>	6