

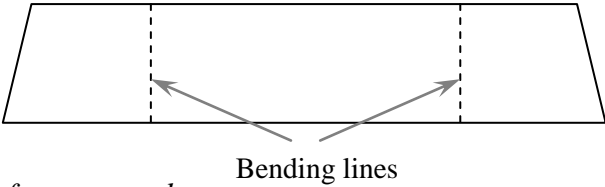
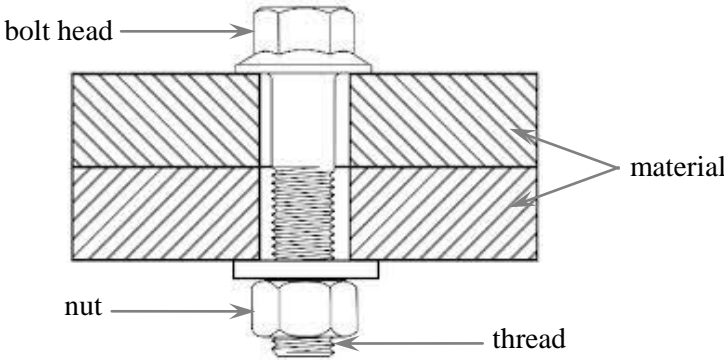
**Annual Examinations for Secondary Schools 2014**

**FORM 3 (1<sup>st</sup> YR)                      DESIGN & TECHNOLOGY                      MARKING SCHEME**

SECTION A: DESIGN		
QUESTION NUMBER	ANSWER	MARKS ALLOTTED
1	i. Situation ii. Design Brief iii. Research iv. Specifications v. Initial Ideas vi. Chosen Idea vii. Development viii. Planning ix. Making x. Testing and Evaluation	$\frac{1}{2} \times 10 = 5$
2	a Possible answers: (i) Design and make a souvenir. (ii) Design and make a souvenir to be distributed after a run, a walk, and a cycle. (iii) Design and make a souvenir to be distributed on the Association for Athletes 50 <sup>th</sup> anniversary run, walk, and cycle. <i>Full marks should be given if answers similar to (iii) are given. Answers as (ii) should be awarded 1 mark. Answers as (i) should not be considered.</i>	2
	b Any ONE of the following: souvenir, 50 <sup>th</sup> anniversary, run/walk/cycle, athletes, textiles/resistant materials	1
3	a Items should match the given design brief, for example: trophy, keychain, drawstring bag, head/wrist sweatband <i>(Students should name two products.)</i>	$\frac{1}{2} \times 2 = 1$
	b Questions should match the given design brief, for example: – How much does the item cost? – What material is it made of? – What types of stitches/joints have been used? – What are its major dimensions? – Is the product made from materials that can be recycled? <i>(Students should give three questions.)</i>	$1 \times 3 = 3$
4	<i>Marks should be awarded as follows:                      1 mark for originality,                      1 mark for clarity of idea,                      1 mark for colour,                      1 mark for materials,                      1 mark for finish and decorations.</i>	5
5	Batch production should be used because: – Quite an amount is needed for a particular event. OR – The event will only happen once so demand is not continuous. <i>1 mark for method of production</i>	3

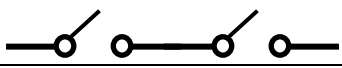
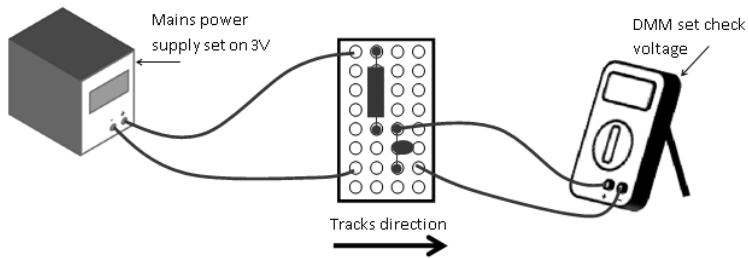
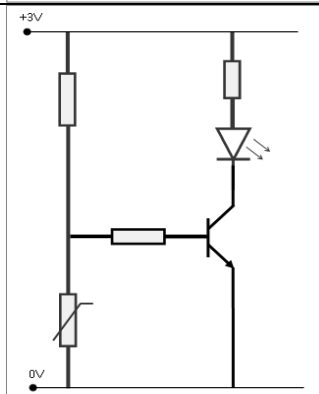
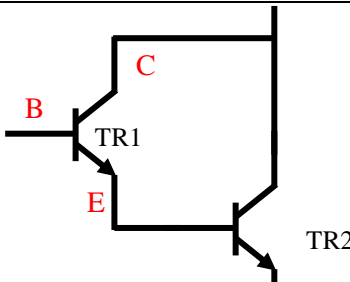
2 marks for reason

SECTION B: RESISTANT MATERIALS

QUESTION NUMBER	ANSWER		MARKS ALLOTTED	
6	a	A thermal insulator is a material which does not conduct heat.	1	
	b	Any TWO plastics, wood, ceramics and stone <i>Students should give the name of the particular material.</i>	$1 \times 2 = 2$	
	c	Any ONE of the following or other relevant answers: – Plastic withstands the necessary handling. – Plastic can be colourless. – It is light in weight.	1	
7	a	 <p>Bending lines</p> <p><i>1 mark for correct shape</i> <i>1 mark for bending lines</i></p>	2	
	b	i	line bending machine/hot wire bender	1
	ii	A flat plastic sheet is placed on a heated wire. Once the plastic softens, the sheet is bent and left to cool at the desired angle.	2	
8	a		$\frac{1}{2} \times 4 = 2$	
	b	Any ONE of the following or other relevant answers: – Clamp material while drilling – Use safety spectacles – Keep hands away from drilling area – Use appropriate drilling bit	1	
	c	Ferrous: A metal which contains iron. Examples: cast iron, mild steel, stainless steel, etc. <i>(Students should give one example).</i> Alloy: A metal which is made up of a combination of other metals. Examples: brass, bronze, stainless steel, etc. <i>(Students should give one example).</i>	$1 \times 4 = 4$	
	d	Any one of the following: pop-rivets/adhesive	1	
9	There are several possible answers, such as: – Screwing the plastic sheet to the sides of the base – Screwing with a combination of supporting brackets <i>2 marks for joining method</i>		3	

1 mark for labelling

SECTION C: ELECTRONICS

QUESTION NUMBER	ANSWER		MARKS ALLOTTED
10	a	False	$\frac{1}{2} \times 6 = 3$
	b	False	
	c	True	
	d	False	
	e	True	
	f	False	
11	a	block diagram	1
	b		1
	c	i once it is pressed it remains in the required state until it is pressed again ii it needs to be continuously pressed to keep the required state	$1 \times 2 = 2$
12	a	thermistor	1
	b	i increases when temperature rises.	$1 \times 2 = 2$
		ii resistance of Component A increases when temperature rises.	
	c	$V_{out} = V_{in} \times \frac{R_2}{R_1 + R_2}$ $V_{out} = 3 \times \frac{9000000}{1000000 + 9000000}$ $V_{out} = 2.7V$	2
d i, ii, iii		$1 \times 3 = 3$	
13	a, b		$1 \times 2 = 2$
14	a, b		$1 \times 2 = 2$





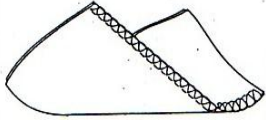
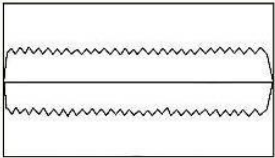
	c	i	amplify
		ii	NPN
			$\frac{1}{2} \times 2 = 1$

**SECTION D: FOOD**

QUESTION NUMBER		ANSWER	MARKS ALLOTTED	
15	a	fat-soluble	$1 \times 5 = 5$	
	b	iron		
	c	Minerals		
	d	5°C and 63°C		
	e	best before		
16	a	i	C	$1 \times 4 = 4$
		ii	A	
		iii	B	
		iv	D	
	b	B and C	1	
17	a	i	100	1
		ii	Any TWO of the following or other relevant answers: – Fibre prevents constipation – It slows the absorption of sugars – It helps to eliminate waste – It lowers cholesterol – It helps in losing weight	$1 \times 2 = 2$
		iii	200°C/Gas mark 6.	1
	b	i	Any THREE of the following: – Equipment should be sterilised – Milk is heated and allowed to cool to a temperature of 38-43°C – Live yoghurt is added to the milk – Mixture is placed into a vacuum flask and left at room temperature for 3 to 4 hours – Vacuum flask is placed in the fridge until needed	$1 \times 3 = 3$
	ii	Yoghurt is a traditional <u>biotechnological</u> product. It is produced by <u>microorganisms</u> . The bacteria <u>ferments</u> the sugar in the milk and produces <u>lactic acid</u> . This gives the yoghurt its <u>texture</u> and sour taste. Yoghurt is a healthy product rich in <u>calcium</u> and protein.	$\frac{1}{2} \times 6 = 3$	

**SECTION E: TEXTILES**

QUESTION NUMBER		ANSWER	MARKS ALLOTTED
18	a	Any TWO of the following or other relevant answers: – Synthetic fibres make fabric dry easily – Some synthetic fabrics do not absorb water – Swimwear made from knitted fabrics can improve performance because it fit firmly and closely – Such fabrics stretch a lot and so do not inhibit body movements	$1 \times 2 = 2$

	b	Any TWO of the following or other relevant answers: <ul style="list-style-type: none"> <li>- absorb moisture</li> <li>- wear well</li> <li>- easy to wash</li> </ul>	$1 \times 2 = 2$
19	a	Any TWO of the following or other relevant answers: <ul style="list-style-type: none"> <li>- Keep machine away from water</li> <li>- Switch off the machine when not in use</li> <li>- Check cables and plug for any damage</li> <li>- Do not overload electricity sockets</li> <li>- See that machine carries EU safety standards labels</li> </ul>	$1 \times 2 = 2$
	b	Any TWO of the following or other relevant answers: <ul style="list-style-type: none"> <li>- Make sure dyes are used and stored safely</li> <li>- Wear an apron to protect clothing</li> <li>- Wear gloves to protect your skin</li> <li>- Rinse and clean the fabric well when finished to avoid contamination</li> </ul>	$1 \times 2 = 2$
20	a	 Hand wash only	$1 \times 4 = 4$
		 Warm iron can be used	
		 Any bleach agent can be used	
		 Do not dry clean	
	b	Symbols make it possible for every person to understand the instructions clearly no matter what language s/he knows.	2
21	plain seam	2	
22	 	$1 \times 2 = 2$	
23	Any TWO of the following: <ul style="list-style-type: none"> <li>- To remove crease from fabrics</li> <li>- To press seams open to give a good quality finish</li> <li>- To press a hem in place</li> <li>- To attach an iron-on interfacing</li> <li>- To remove wax from a piece of batik work</li> <li>- To press a turning in place ready for machining</li> </ul>	$1 \times 2 = 2$	