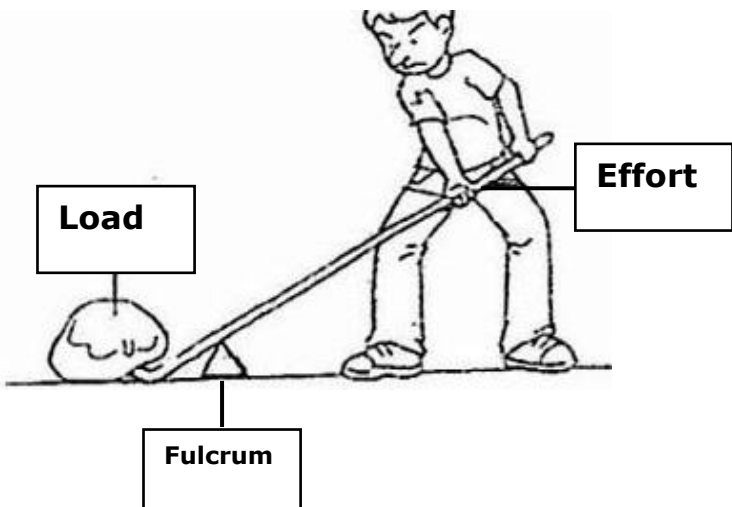


Annual Examinations for Secondary Schools 2022

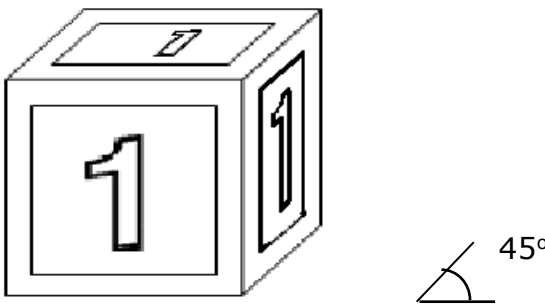
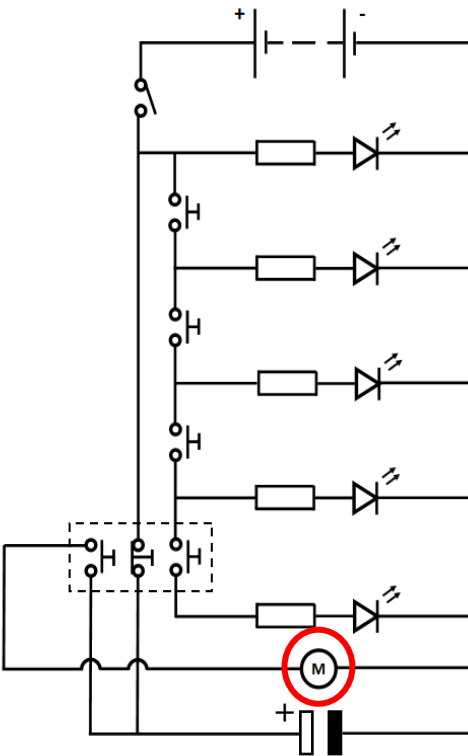
YEAR 11 DESIGN & TECHNOLOGY MARKING SCHEME

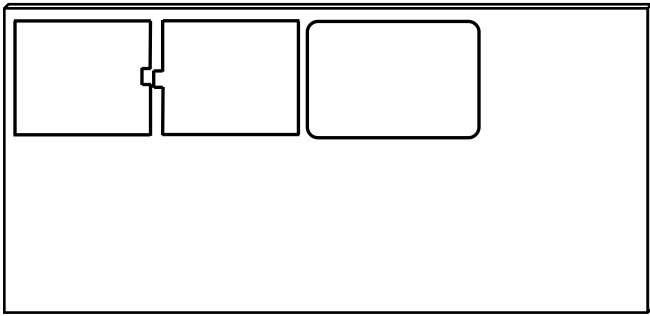
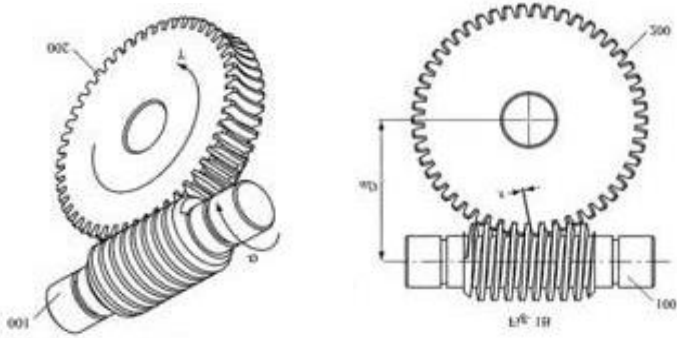
SECTION A: CORE

QUESTION NUMBER		ANSWER	MARKS ALLOTTED																					
1	a	Step 1. Sheet is heated and brought over to a male mould.	1 mark each Total 2 marks																					
		Step 2. Given																						
		Step 3. Sheet takes shape of the mould and cools down.																						
	b	Accept: High impact polystyrene (HIPS) and ABS sheets	1 mark																					
2		Extrusion	1 mark																					
3		<table><tr><th>Tool</th><th>Name</th><th>Use</th></tr><tr><td></td><td>Seam ripper</td><td>It is used to rip/ tear textile components and seams apart.</td></tr><tr><td></td><td>Try square</td><td>It is used to mark/check perpendicular lines.</td></tr><tr><td></td><td>Soldering iron</td><td>It is used to permanently join electrical connections/electronic components.</td></tr><tr><td></td><td>Scriber</td><td>It is used for marking metals and plastics.</td></tr><tr><td></td><td>Iron</td><td>It is used to flatten/remove creases from various fabrics.</td></tr><tr><td></td><td>Use Safety Goggles sign</td><td>Safety sign meaning that safety goggles/eye protection should be worn</td></tr></table>	Tool	Name	Use		Seam ripper	It is used to rip/ tear textile components and seams apart.		Try square	It is used to mark/check perpendicular lines.		Soldering iron	It is used to permanently join electrical connections/electronic components.		Scriber	It is used for marking metals and plastics.		Iron	It is used to flatten/remove creases from various fabrics.		Use Safety Goggles sign	Safety sign meaning that safety goggles/eye protection should be worn	½ mark each Total 6 marks
Tool	Name	Use																						
	Seam ripper	It is used to rip/ tear textile components and seams apart.																						
	Try square	It is used to mark/check perpendicular lines.																						
	Soldering iron	It is used to permanently join electrical connections/electronic components.																						
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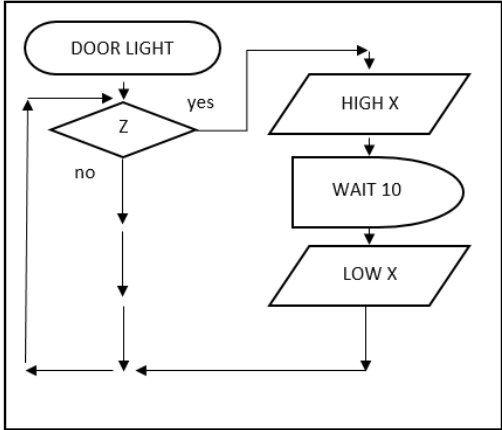
4		Annealing	1 mark		
5	a	1 st class	1 mark		
	b	<div></div>	1 mark each Total 3 marks		
6		Material	Class	Origin	1 mark each Total 5 marks
		Cast iron	Ferrous	<i>Mineral</i>	
		Oak	<i>Hardwood</i>	Organic	
		Flax	<i>Cellulose base fibre</i>	Organic	
		Carbon fibre	Mineral base fibres	<i>Mineral</i>	
		ABS	<i>Thermoplastic</i>	Petroleum	
SECTION B: Design Aspect					
7	a	Web diagram (1 mark for correct web diagram and presentation (1) 2 new areas: Accept areas relevant to this situation such as safety, materials, manufacturing, or similar: ½ each (1) 4 examples: Award ½ each suitable area added (2)			Total 4 marks
	b.i	Accept: think and Play company, the company, the manufacturer			1 mark
	b.ii	Accept: the designer, myself as the designer etc.			1 mark

8	a.i	Accept such answers or similar: The toy will need players to work together to solve. Or The game will be more fun if played in groups.					1 mark
	a.ii	Accept such answers or similar: The toy must be safe to use and contain no toxic material.					1 mark
	b	Accept any suitable specification written as such.					1 mark
9		For both ideas award: 1 mark for suitability of idea referring to given concept 1 mark for idea functionality 1 mark for presentation and clarity 1 mark for suitable annotations					4 x 2 marks Total 8 marks
10		Award 1 mark for suitable design Brief format Award 1 mark for mentioning needs Award 1 mark for stakeholders and additional appeal					3 marks
11	a	Anyone over 12 years					1 mark
	b	Answer should refer to test helping in knowing how real customers use the game/ if it is too difficult, etc. Accept similar suitable answers.					1 mark
12	a	Arm cushion	Textile	€2.0	2	€4	½ each 1 mark
		Case Sides	Plastic	€0.50	4	€2	
	b	Infographic drawn freehand may be: a single bar graph, a pie chart, any other suitable graph/chart. Award 1 mark for infographic Award 1 mark for rendering sections					2 marks

SECTION C: Technology aspect			
13	a	Butt joint	1 mark
	b	Sheet Acrylic plastic or PVC	2 marks
	c	Screws	1 mark
	d	Sharp edges to be made round to facilitate safety when handling.	2 marks
	Accept other possible answers.		
14	a		3 marks
	b	The block should be coloured using the following complimentary colours; red and green or yellow and purple or orange and blue.	2 marks
15	a b		Total 4 marks

		<p>Allocate 1 mark for circling the motor.</p> <p>Allocate 1 mark for correct electronic symbol, 1 mark for correct polarity and 1 mark for an appropriate name: capacitor.</p>	
16	a	Laser cutter	1 mark
	b	 <p><i>Accept other possible answers taking care of wastage.</i></p>	3 marks
	c	Man-made board	1 mark
	d	<p>Students have to draw any of the following; Worm gear or worm wheel, worm shaft, possible crank, bevel gears.</p> 	3 marks
	e	Rotary	1 mark
	f	<p>Safety apron Sand Opened the window for ventilation / put on disposable gloves Varnish Paintbrush.</p> <p><i>Consider other possible answers.</i></p>	5 marks

17	a	PP3 Battery	1 mark
	b	A primary battery is discarded after use, whilst a secondary battery can be recharged over and over again. <i>Accept other possible answers.</i>	1 mark
	c	Advantage: A Secondary battery is an eco-friendly battery since it reduces waste. Disadvantage: A Secondary battery may cost more. <i>Accept other possible answers.</i>	2 marks
	d	Digital multimeter/ multimeter	1 mark
18	a	<p>Award 2 marks for i., 2 marks for ii., 1 mark for iii.</p>	5 marks
	b	Ohms, accept also the Omega symbol	½ mark
	c	push-to-make switch	½ mark
	d	4.5V	1 mark

19	a.i		1 mark
	a.ii	WAIT 1	1 mark
	a.iii	LOW C.0	1 mark
	b	When IC pin C.1 is high	2 marks
	c.i	 <p>Flowchart shown shows possible solution. Award 1 mark for each correct symbol and label added. 3 marks Award 1 mark for correct flow sequence. Arrow answers question ii. Award 1 mark.</p>	5 marks
	d.i	High C.2 makes the buzzer buzz. Accept also: shows time is up.	1 mark
	d.ii	When more than one output needs to be used.	1 mark
	d.iii	The players will have a time limit to answer and the buzzer will stop them, letting the other player jump in – thus making it better.	2 marks