

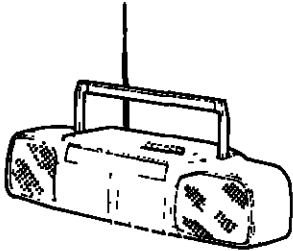
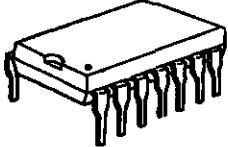
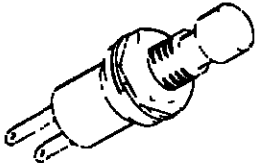

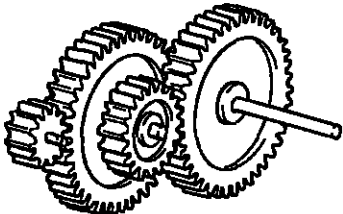
*An Roinn Oideachais agus Eolaíochta  
Junior Certificate Examination, 2001*

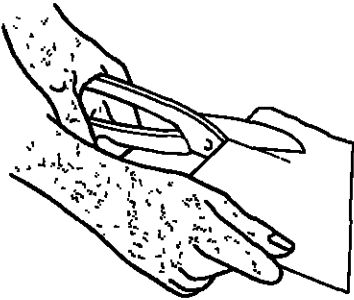
**TECHNOLOGY**

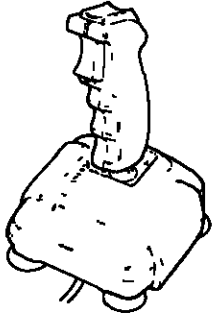
**ORDINARY LEVEL**

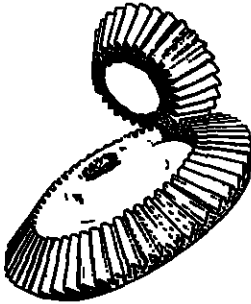
*Marking  
Scheme*


**SECTION A – 80 MARKS ANSWER ANY SIXTEEN QUESTIONS FROM THIS SECTION**

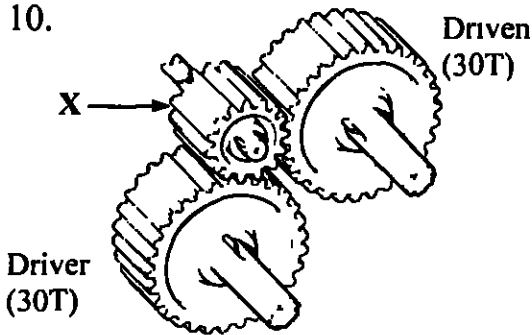
<p>1.</p> 	<p>This ghetto blaster is shown in:</p>	<p>Elevation</p>	
		<p>Plan view</p>	
		<p>Pictorial view</p>	<p>5</p>
<p>2.</p> 	<p>This electronic component is a(n)</p>	<p>Resistor</p>	
		<p>Transistor</p>	
		<p>Integrated Circuit</p>	<p>5</p>
<p>3.</p> 	<p>This switch is a</p>	<p>Push switch</p>	<p>5</p>
		<p>Toggle switch</p>	
		<p>Slide switch</p>	
<p>4.</p> 	<p>Marconi invented the</p>	<p>Television</p>	
		<p>Radio</p>	<p>5</p>
		<p>Electric light bulb</p>	
<p>5.</p> 	<p>This mechanism is a</p>	<p>Pulley drive</p>	
		<p>Chain and sprocket</p>	
		<p>Compound gear train</p>	<p>5</p>

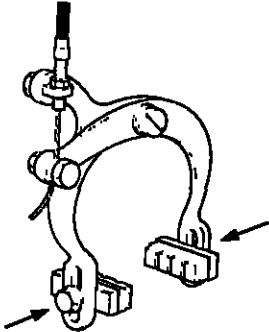
6. 	This tool is a:	Guillotine	
		Vice Grips	
		Tin snips	5


7. 	A joystick is a computer.	Output device	
		Input device	5
		Storage device	

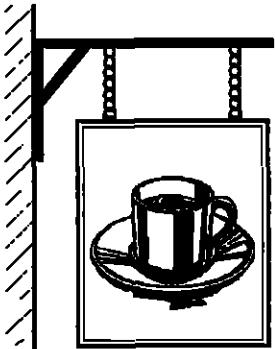
8. 	These gears are	Spur gears	
		Bevel gears	5
		Worm gears	

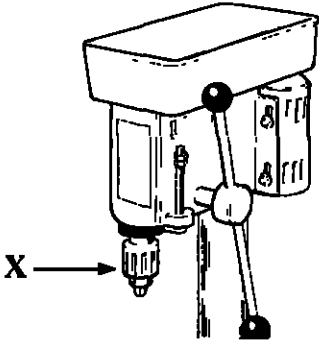
9. 	This tool is a:	Band saw	
		Tennon saw	
		Hacksaw	5

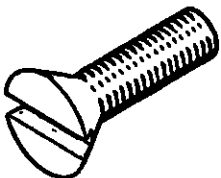
10. 	Gear 'X':	Makes the driven go faster than the driver.	
		Makes the driven go slower than the driver	
		Makes the driven and driver go in the same direction.	5

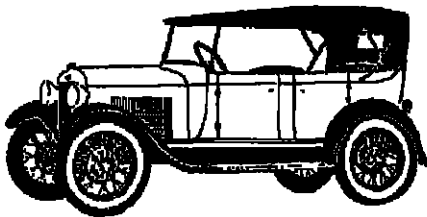
11.		<p>When bicycle brakes are pulled the force between the brake blocks and the wheel is a</p>	Bending force	
			Friction force	5
			Shear force	

12.		<p>This sign indicates :</p>	An electrical hazard	
			A fire hazard	
			Recycling	5

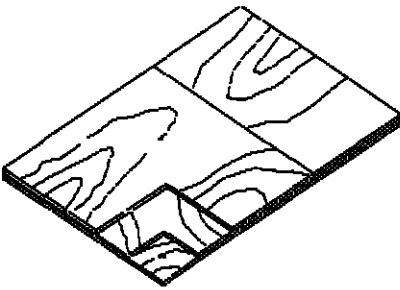
13.		<p>The chains on this sign act as</p>	Struts	
			Ties	5
			Beams	

14.		<p>Part 'X' is a:</p>	Drill bit	
			Chuck	5
			Chuck key	

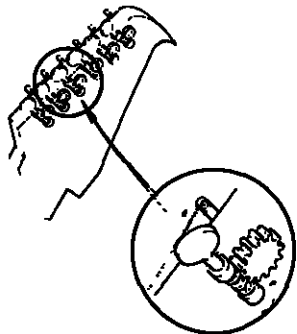
15.		<p>This screw is a.</p>	Cheese head screw	
			Countersunk screw	5
			Pan head screw	

16.  Mass production was developed by

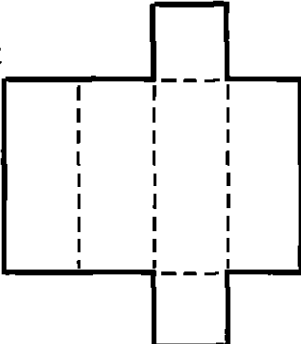
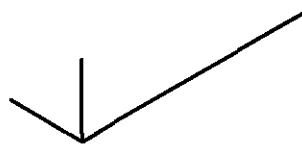
Rudolf Diesel	
Karl Benz	
Henry Ford	5

17.  Which one of the following is a manufactured board?

Plywood	5
Balsa	
Teak	

18.  This gear mechanism is a:

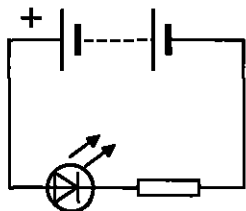
Rack and Pinion	
Ratchet and Pawl	
Worm and Wheel	5

19. A development of a closed container is shown.  Complete the isometric sketch of this container.  5

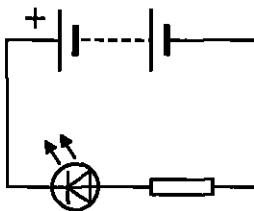
No Attempt	0	←	→
Poor	1	←	→
Good	3	←	→
Complete	5	←	→

20. In which circuit (A, B or C) will the LED light?

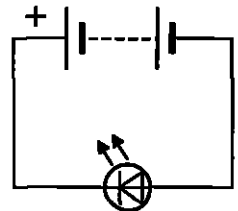
Answer     A    



A 5



B



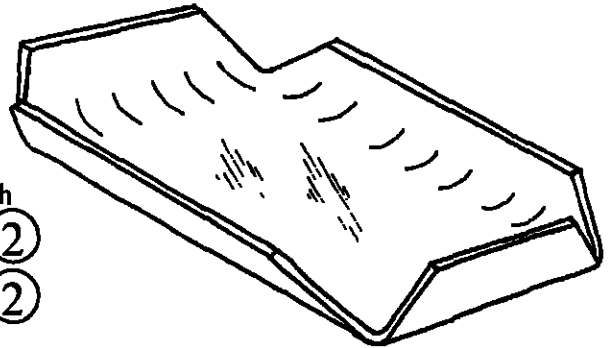
C

**SECTION B – 80 MARKS**  
**ANSWER ANY TWO QUESTIONS FROM THIS SECTION**

40 Marks

1.

(a) This sketch shows details of a plastic cheese dish  
 The sides of the dish have been bent up using  
 a hot wire strip heater



(i) State **two** advantages of using plastic to make this dish

1 Not easily broken or other valid answer. (2)

2 Easily shaped or other valid answer. (2)

(ii) Name a plastic material that could be used to make the dish

Perspex or other valid answer. (2)

(iii) Complete the development of the dish

<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%; padding: 5px;">No Attempt 0 ←</td> <td style="width: 5%; text-align: center;">←</td> <td style="width: 35%; text-align: right;">1</td> </tr> <tr> <td style="padding: 5px;">Fair 2 ←</td> <td style="text-align: center;">←</td> <td style="text-align: right;">3</td> </tr> <tr> <td style="padding: 5px;">Good 4 ←</td> <td style="text-align: center;">←</td> <td style="text-align: right;">5</td> </tr> <tr> <td style="padding: 5px;">Complete 6 ←</td> <td style="text-align: center;">←</td> <td style="text-align: right;">5</td> </tr> </table>	No Attempt 0 ←	←	1	Fair 2 ←	←	3	Good 4 ←	←	5	Complete 6 ←	←	5	<div style="border: 1px solid black; width: 100px; height: 100px; margin: 0 auto; position: relative;"> <div style="position: absolute; top: 0; right: 0; width: 50px; height: 50px; border: 1px solid black; transform: rotate(45deg);"></div> </div>
No Attempt 0 ←	←	1											
Fair 2 ←	←	3											
Good 4 ←	←	5											
Complete 6 ←	←	5											

12 Marks

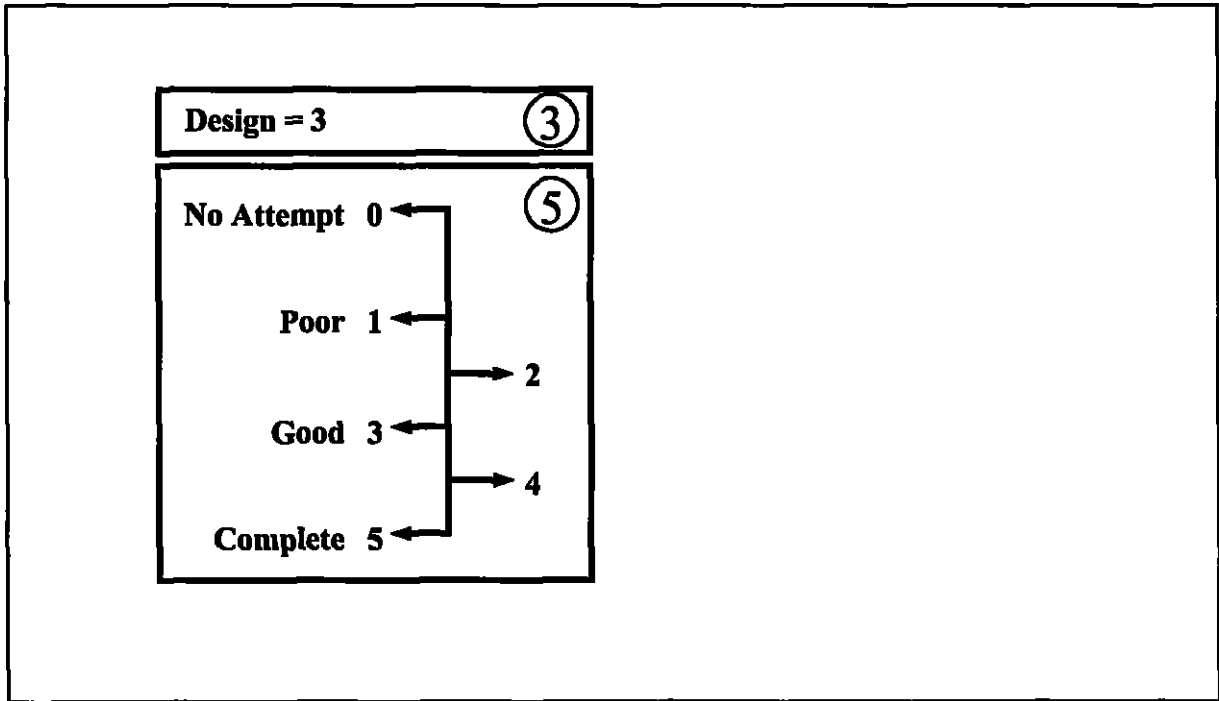
(b) Name **two** other household items that are made from plastic

1 Bucket or other valid answer. (2)

2 TV/Radio case or other valid answer. (2)

4 Marks

(c) (i) Using sketches, design a suitable cover for the cheese dish



(ii) List **two** processes involved in the manufacture of this cover

- 1 A valid process linked to manufacture. (2)    2 A valid process linked to manufacture. (2)

12 Marks

(d) (i) On the supermarket shelf cheese is usually wrapped in plastic. State **two** advantages of plastic wrapping.

- 1 Hygienic or other valid answer. (2)    2 Keeps cheese fresh or other valid answer. (2)

\_\_\_\_\_

\_\_\_\_\_

(ii) Suggest **two** ways to reduce the amount of plastic shopping bags we use

- 1 Recycle or other valid answer. (2)    2 Charge for bags or other valid answer. (2)

\_\_\_\_\_

\_\_\_\_\_

8 Marks

(e) This brass stand is to be glued to the underside of the cheese dish

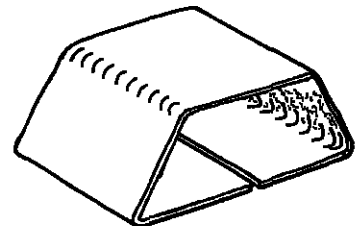
Give a reason why screws are unsuitable for this purpose

Hygiene - dish would be difficult to clean, (4)

Screw could rust.

\_\_\_\_\_



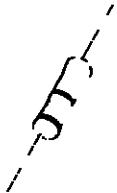






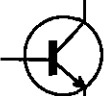


\_\_\_\_\_



Brass Stand

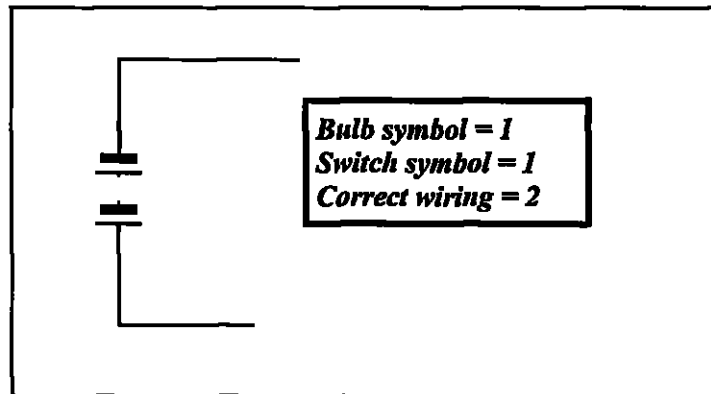
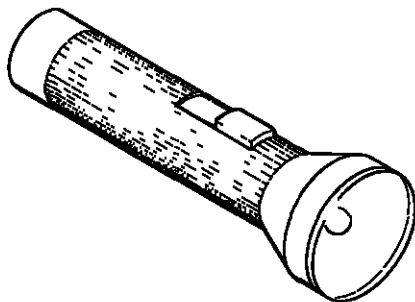
4 Marks

(a) (i) Complete this chart by inserting the correct name and symbol for any three components shown

Component						
Component Symbol						
Component Name	<u>Bulb</u>	<u>LDR</u>	<u>Resistor</u>	<u>Transistor</u>	<u>LED</u>	<u>Switch</u>
Any three correct names = 3 x 1, any three correct symbols = 3 x 1						

6

(ii) Complete the electrical circuit diagram for this torch



Bulb symbol = 1  
 Switch symbol = 1  
 Correct wiring = 2

4

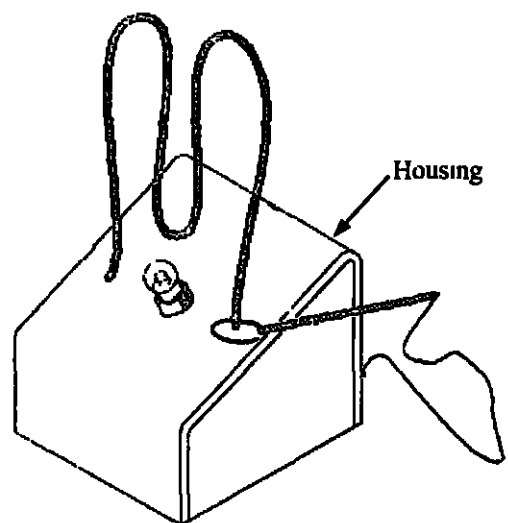
10 Marks

(b) This drawing shows a housing for a 'steady-hand game'

(i) Name a material suitable for making the housing  
Perspex or other valid answer. 2

(ii) How would you attach the bent wire to the housing?  
Drill two holes in housing the same size as the wire and then glue in place. 2  
or other valid answer.

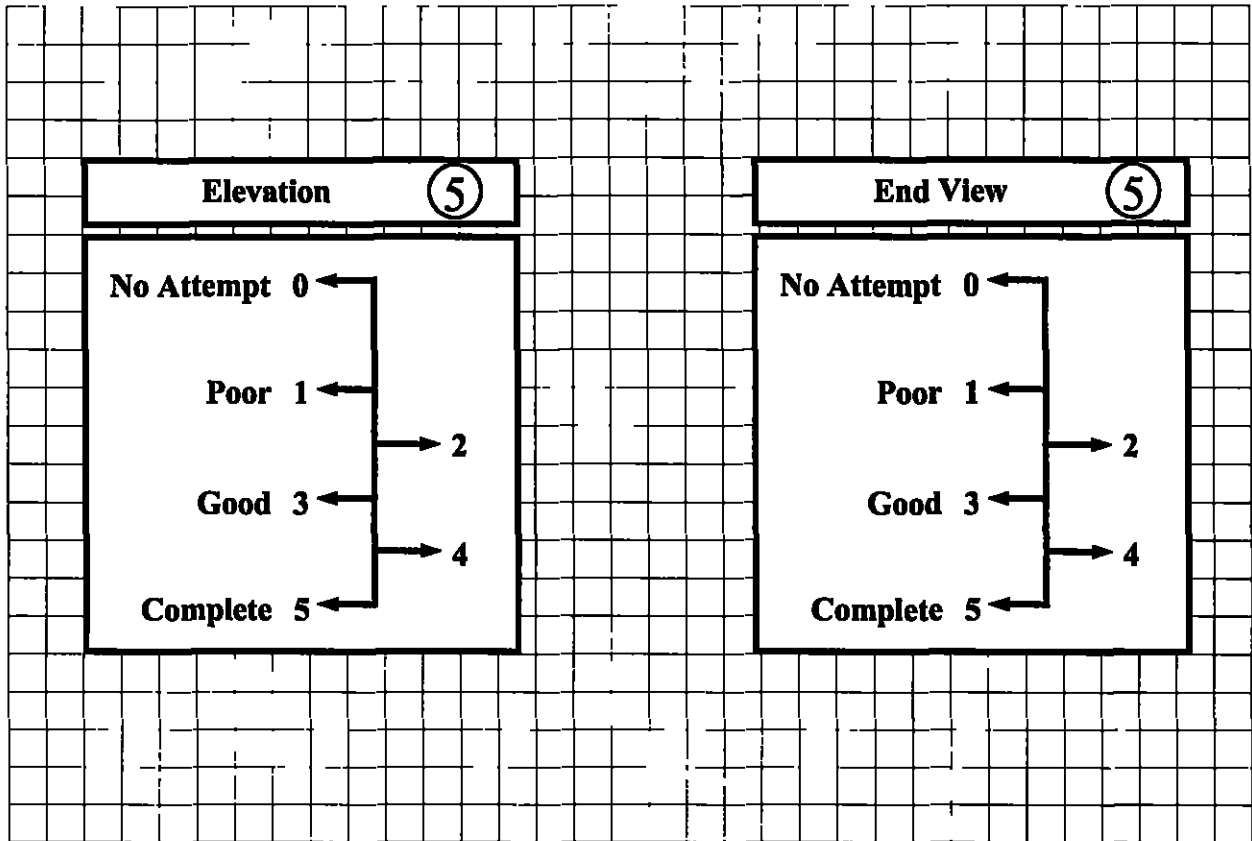
(iii) Briefly describe how the housing could be made 4  
Description to include the following:  
Marking out, cutting, filing, drilling, bending, joining.  
Four valid processes included in description. (2 for first then 1 + 1 = 4)



8 Marks



- (c) Draw an elevation and an end view of the housing for the 'steady-hand game' in the grid below  
(Do not include the wire)



10 Marks

- (d) (i) A computer is a device that uses digital electronics  
List **two** other devices that use digital electronics

- 1 Calculator or other valid answer. (2)
- 2 Digital watch or other valid answer. (2)

- (ii) A computer can store information on a floppy disk  
List **two** other computer storage devices

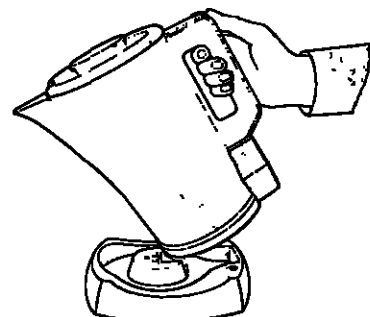
- 1 Hard Disk or other valid answer. (2)
- 2 CD-ROM or other valid answer. (2)



8 Marks

- (e) Many modern kettles have a separate base. State **two** advantages of this design feature

- 1 Kettle easily removed or other valid answer. (2)
- 2 Safer because you will not need to connect the plug with your wet hands. Or other valid answer. (2)



4 Marks

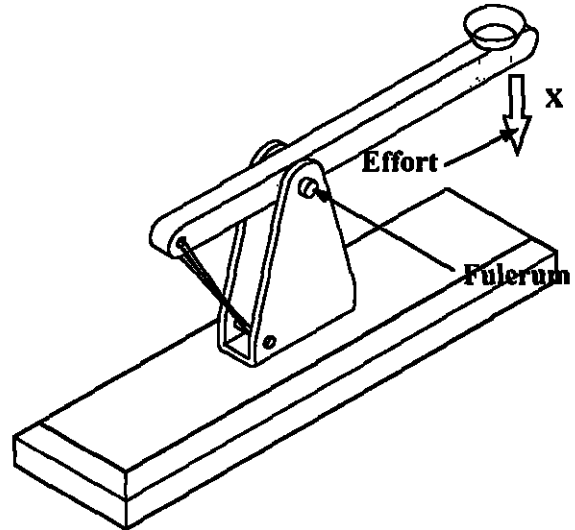
(a) This sketch shows a toy used to throw small objects.

(i) Name the force in the elastic when the lever is pressed down in the direction shown by arrow 'X'

Tensile (2)

(ii) Indicate on the drawing the position of the Effort and the Fulcrum (2)(2)

(iii) Complete the development of the bracket in the grid below



(6)

No Attempt 0 ←

→ 1

Fair 2 ←

→ 3

Good 4 ←

→ 5

Complete 6 ←

12 Marks

(b) (i) List four stages in the manufacture of the acrylic bracket

- 1 Marking out or other valid answer. (1)      3 Cutting or other valid answer. (1)
- 2 Drilling or other valid answer. (1)      4 Bending or other valid answer. (1)

(ii) Name a suitable material for making the lever and briefly explain how to curve the ends

- 1 Material Steel (2)
- 2 Curving the ends Cut with a hacksaw and file to curve both ends (2)
- or other valid answer.

8 Marks

- (c) Sketch a design for a container into which the small objects from the toy can be thrown  
Also, give details of how the container is to be made

(5)

*Suitability of design = 3*  
*Quality of sketch = 2*

*Description of how the container is made to include cutting, joining and assembly methods used. (3 x 1)*

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(3)

8 Marks

- (d) (i) A design folder for a Technology task should contain information about the investigation and the evaluation Write a brief note about what should be included in each of these sections.

1 Investigation

(2)

*This section will contain evidence of investigation into the given Technology task.*

2. Evaluation

(2)

*This section will contain a realistic evaluation of the final product and may suggest improvements in the design or manufacturing methods used.*

- (ii) Why is it sometimes necessary to make a model of a task before making the final product?

(4)

*Helps sort out any problems that may arise later, helps to visualise final product, allows for changes to be made to design before manufacture.*

8 Marks

- (e) Name this mechanism and state two advantages of this type of mechanism

Name Pulley and belt system.

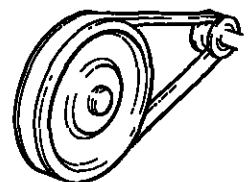
(2)

Advantages: 1 Reduces/Increases driven speed, etc.

(1)

2 Cheaper than a gearbox, etc.

(1)



4 Marks

4.

40 Marks

- (a) (i) Wind is a renewable source of energy (2)  
 Name one other renewable source of energy Solar, Wind, Wave, etc.
- (ii) Name **two** non-renewable sources of energy (2)  
 1 Coal or other valid answer. (2) 2 Gas or other valid answer. (2)
- (iii) Give **two** reasons why wind turbines are always placed high on tall masts (2)  
 1 To catch the unobstructed wind flow or other valid answer. (2)  
 2 For safety reasons or other valid answer. (2)

10 Marks

- (b) Wind turbines convert wind energy into mechanical energy and finally to electrical energy  
 Complete this chart by matching the type of energy conversion with the device.

DEVICE	ENERGY CONVERSION
Motor	Electrical → Mechanical
Bulb	Electrical → Light
Battery	Chemical → Electrical
Microphone	Sound → Electrical
Speaker	Electrical → Sound

(2)  
(2)  
(2)  
(2)

SELECT ANSWERS FROM HERE		
Electrical	→	Mechanical
Sound	→	Electrical
Chemical	→	Electrical
Electrical	→	Sound
Electrical	→	Light

8 Marks

- (c) Heat loss is a big problem in our homes. List **two** ways in which this heat loss can be reduced

- 1 Attic insulation or other valid answer. (4)  
 2 Double glazed windows or other valid answer. (4)

8 Marks

- (d) Fabrics are used in the sails of boats. List **two** important properties of the fabric used in sail making.

1. Lightweight or other valid answer. (3) 2 Waterproof or other valid answer. (3)

6 Marks

- (e) Complete the names of the following mechanisms

1 Ratchet and Pawl

2 Cam and and Follower (2)

4 Rack and pinion (2)

3 Chain and and Sprocket (2)

5 Crank and slider. (2)

8 Marks