S68

Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination, 2006

TECHNOLOGY

ORDINARY LEVEL

160 Marks

Wednesday 21 June, Afternoon 2.00 to 4.00

Centre Number _____ **Examination Number** _____

INSTRUCTIONS

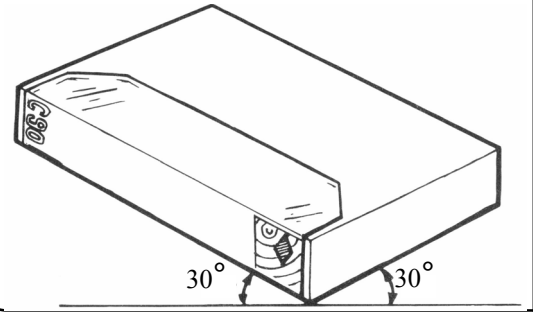
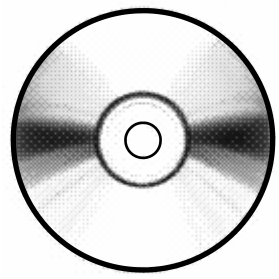
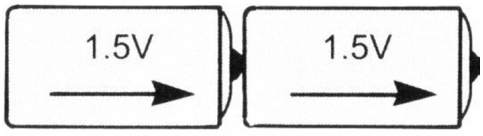
1. Answer Section A and <u>any two</u> questions from Section B.
2. Write your answers in the spaces provided or tick the appropriate box. ☑
3. Hand up this paper at the end of the examination.

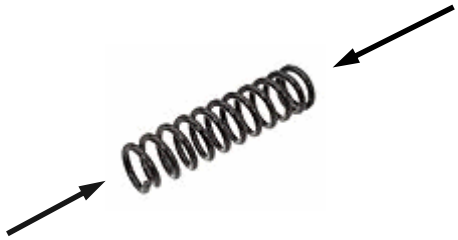
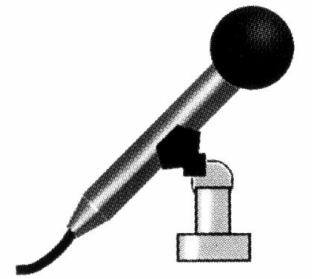
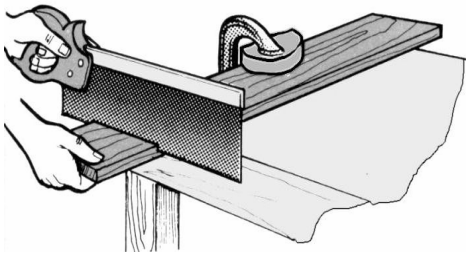
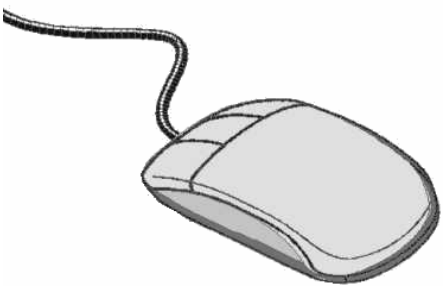
1.	Total of end of page totals	
2.	Aggregate total of all disallowed question(s)	
3.	Total mark awarded (1 minus 2)	
4.	Bonus mark for answering through Irish (if applicable)	
5.	Total mark awarded if Irish Bonus (3+4)	
	<u>Note</u>: The mark in row 3 (or row 5 if an Irish bonus is awarded) must equal the mark in the Total Mark box on the script	

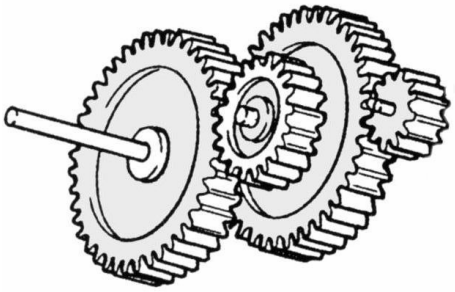
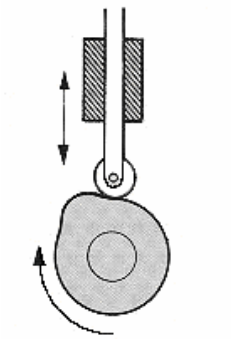
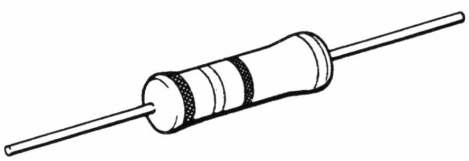
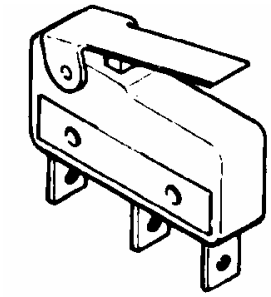
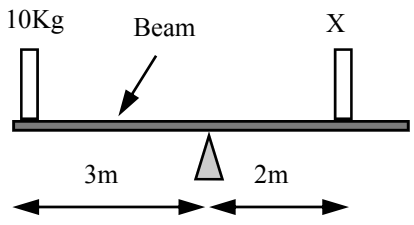
For Examiner	
Total Mark	
Question	**Mark**
Section A	
Section B Q1	
Section B Q2	
Section B Q3	
Section B Q4	
Total	
Grade	

MAKE SURE TO WRITE YOUR EXAMINATION NUMBER IN THE BOX PROVIDED ON THIS PAGE

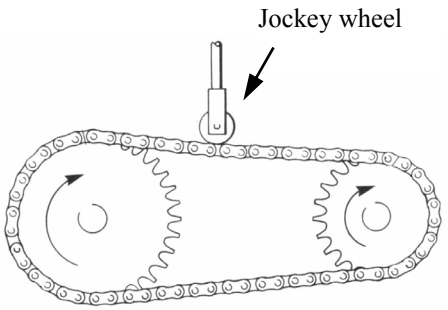
SECTION A – 80 MARKS ANSWER ANY SIXTEEN QUESTIONS IN THIS SECTION

1. 	This drawing is a(n):	Plan view	
		Perspective view	
		Isometric view	
2. 	An alloy is:	A mixture of plastic and metal	
		A mixture of two or more metals	
		A pure metal	
3. 	The capacity of a DVD is measured in:	Bytes	
		Kilobytes	
		Gigabytes	
4. 	The total voltage of this battery is:	1.5 volts	
		3 Volts	
		4.5 Volts	
5. 	John Logie Baird invented the first:	Radio	
		Television	
		Tape recorder	

6. 	When the coil spring is pressed in the direction of the arrows it will:	Bend	
		Shear	
		Compress	
7. 	A microphone Converts:	Sound into electricity	
		Electricity into sound	
		Sound into heat	
8. 	The saw in use here is a:	Hacksaw	
		Tenon saw	
		Coping saw	
9. 	A computer mouse is:	An output device	
		A storage device	
		An input device	
10. 	A motor cycle helmet is a:	Shell structure	
		A frame structure	
		A tensile structure	

11. 	This is a:	Simple gear train	
		Compound gear train	
		Bevel gear system	
12. 	This mechanism uses a:	Cam and follower	
		Ratchet and pawl	
		Chain and sprocket	
13. 	Resistance is measured in:	Amps	
		Farads	
		Ohms	
14. 	This is a:	Toggle switch	
		Micro-switch	
		Rocker switch	
15. 	When the beam is in equilibrium (balanced) the mass at X is:	15Kg	
		30Kg	
		10Kg	

16.



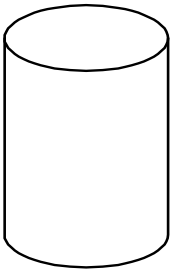
A chain and sprocket mechanism and jockey wheel are shown. Explain what the jockey wheel is used for.

Function of the jockey wheel:_____

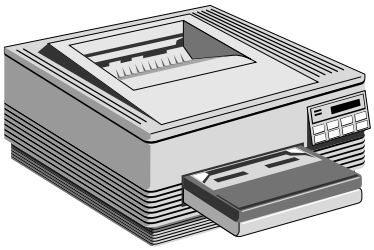
_____

_____

17. Draw a development of this open top container in the space opposite.



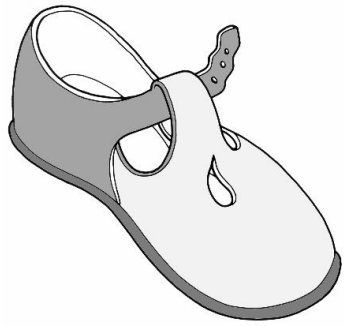
18.



A computer printer is:

Software	
Hardware	
Shareware	

19.



Leather is a:

Synthetic fabric	
Natural fabric	
Combined natural and synthetic fabric.	

20.

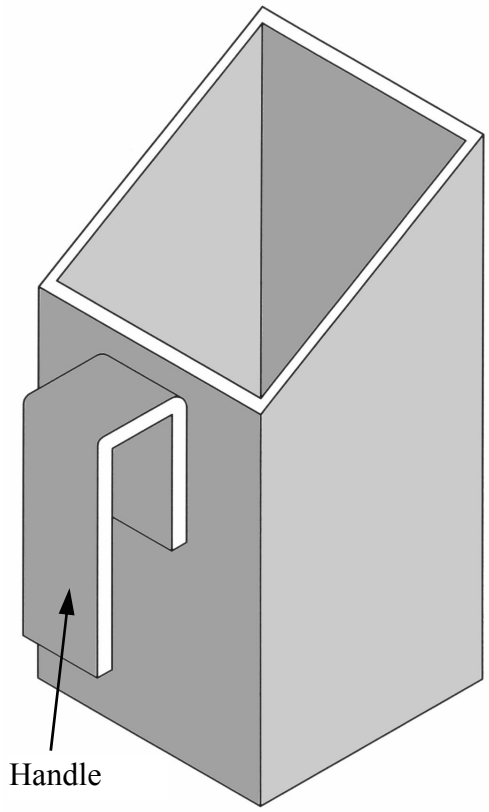
Drinks cans are made from:

Steel	
Copper	
Aluminium	

SECTION B – 80 MARKS
ANSWER ANY <u>TWO</u> QUESTIONS FROM THIS SECTION

1. 40 Marks

(a) A milk carton holder is shown. The milk carton is inserted into the holder which is then gripped by the handle. 10 Marks



Milk carton holder

(i) Suggest a suitable material from which the milk carton holder could be made.

Suitable material: _____

(ii) List three reasons for selecting this material.

1. _____

2. _____

3. _____

(iii) Suggest two methods of fixing the handle to the holder.

Method 1: _____

_____

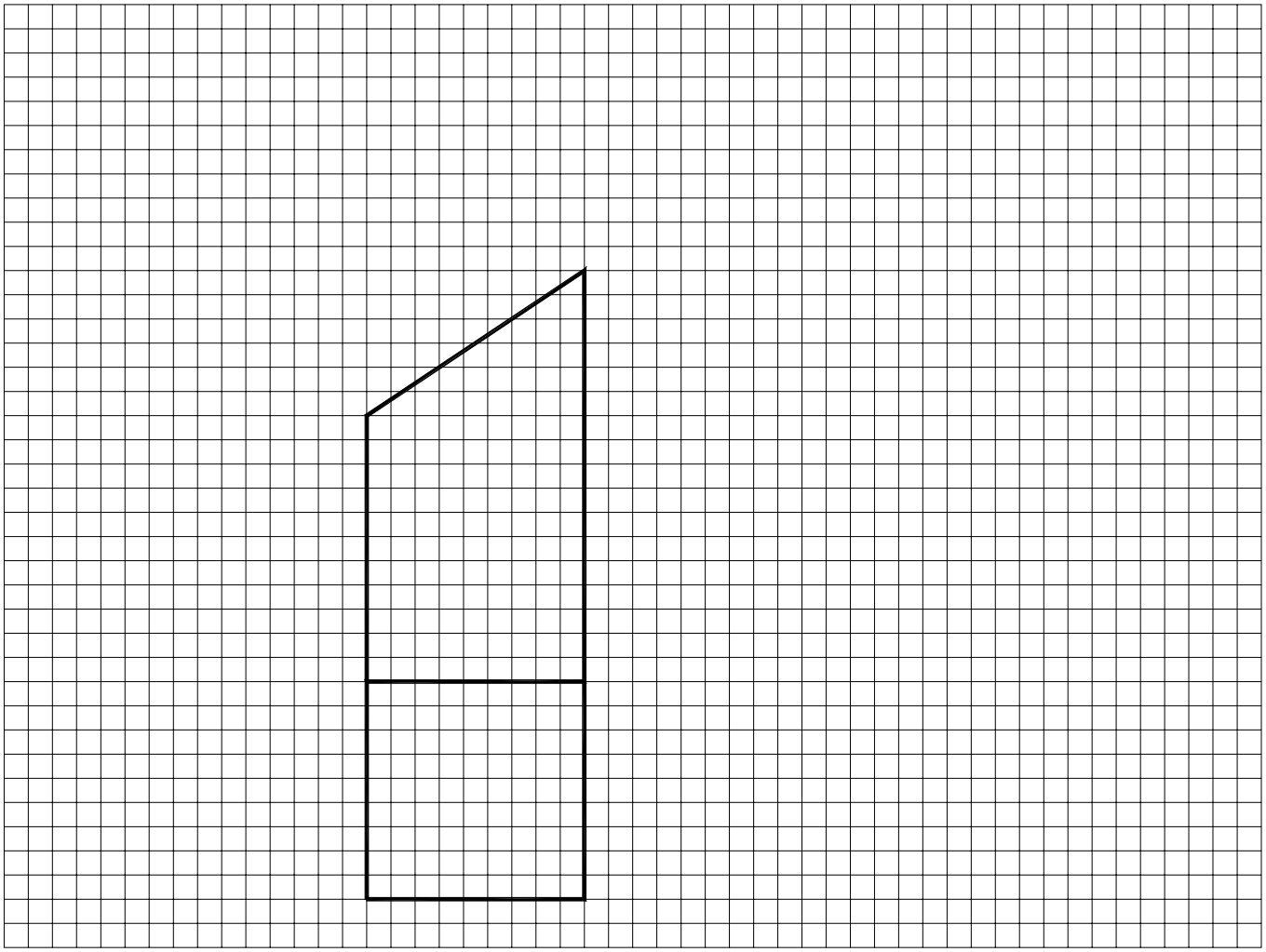
Method 2: _____

_____

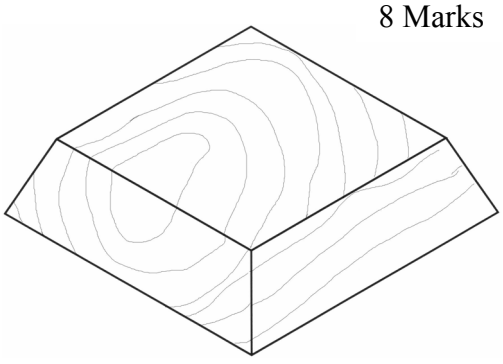
(b) Name two hand tools that you would use in the manufacture of the holder and make a sketch of each of the tools in the space provided. 10 Marks

Name of tool	Sketch

(c) The development of one side and the base of the milk carton holder is shown below. Complete this development showing the other three sides. (Omit the handle) . 12 Marks



(d) The wooden base shown is to be attached to the milk carton holder. Name a suitable wood for the base. Describe three steps in the manufacture of the base. 8 Marks



Wooden base

Suitable wood: _____

Manufacturing steps:

Step 1: _____

_____

_____

Step 2: _____

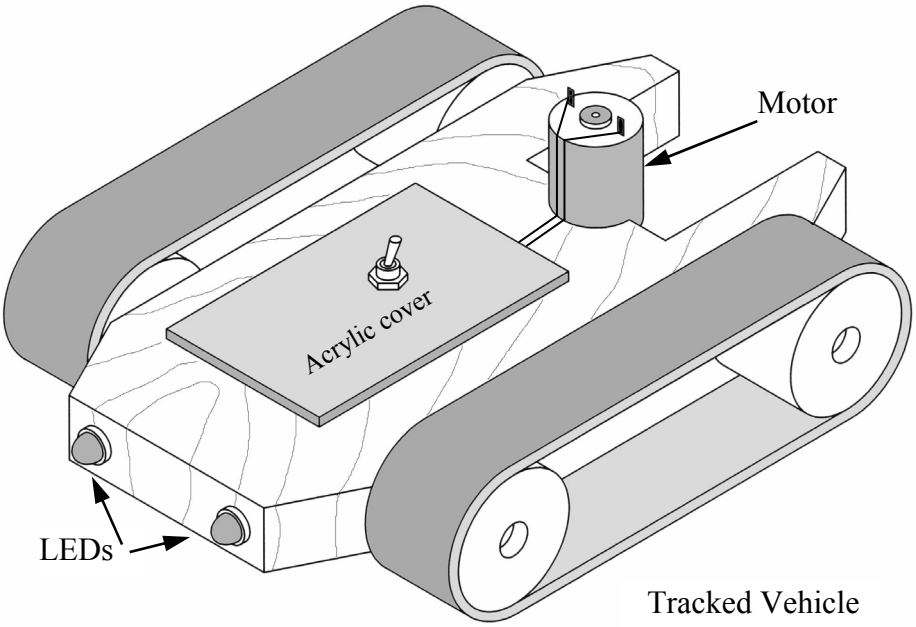
_____

Step 3: _____

_____

2. 40 Marks

(a) A drawing of a model vehicle is shown. The body of the vehicle is made from wood. The switch activates the motor and the two flashing LEDs on the front of the vehicle. 10 Marks



Tracked Vehicle

(i) Name a suitable material for the tracks.

Answer: _____

(ii) In the box below draw the symbol for a LED.

(iii) In order to contain a battery, a rectangular hole is required in the body. Describe three stages in the making of the rectangular hole.

Stage 1: _____

_____

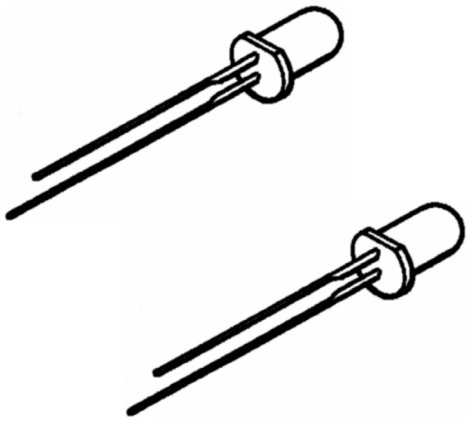
Stage 2: _____

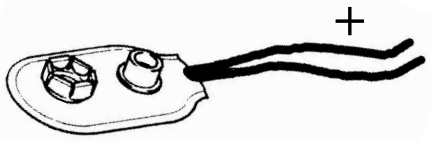
_____

Stage 3: _____

_____

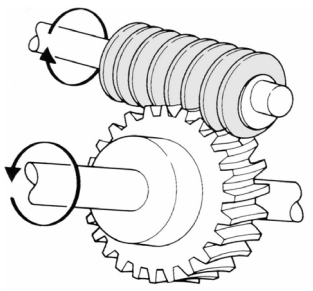
(b) The two LEDs are to be connected in parallel and then to the battery snap. Sketch the wire connection for the circuit. 6 Marks





(c) 8 Marks

The motor must be connected to the rear axle of the model vehicle using a worm drive mechanism. Give three reasons for using this mechanism.



Reasons for selection:

Reason 1: _____

_____

Reason 2: _____

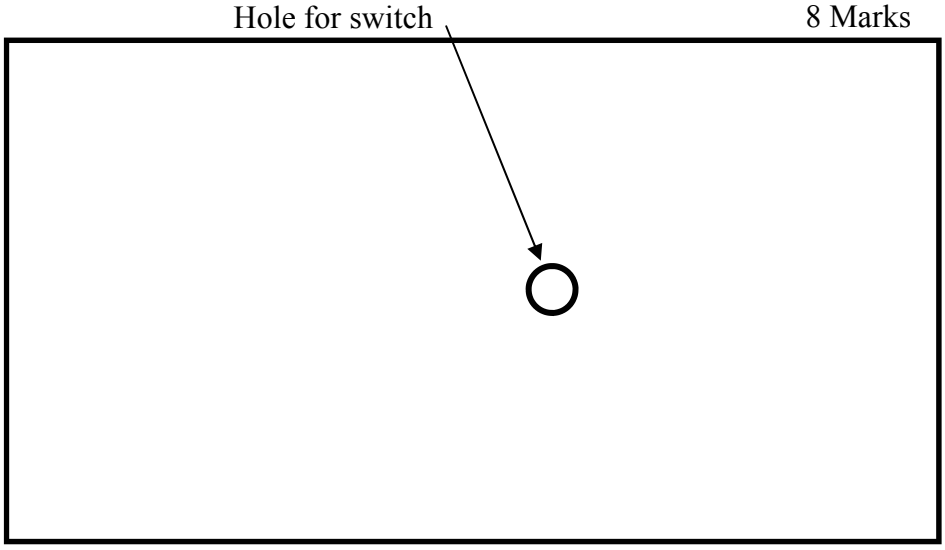
_____

Reason 3: _____

_____

(d) A logo for the vehicle is to be placed on the acrylic cover. The plan of the acrylic cover is shown. Draw your design for a logo on this plan. Use shading where appropriate.

8 Marks



Plan of acrylic cover

(e) 8 Marks

List four precautions that the manufacturer of the vehicle must take to ensure that it is safe for young children.

1 _____

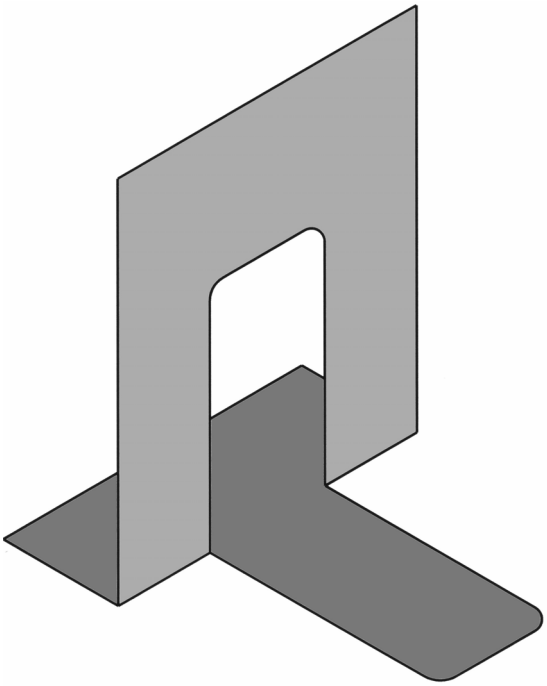
2. _____

3. _____

4. _____

3. 40 Marks

(a) A bookend made from sheet metal is shown. 12 Marks



Bookend

(i) Name a suitable metal for the bookend.

Metal: _____

(ii) Identify one safety hazard in this design.

Safety hazard: _____

_____

_____

(iii) A number of bookends are to be made from a piece of sheet metal measuring 200mm x 130mm. How many bookends can be made from a sheet measuring 1300mm x 400mm?

_____

Show on the sheet below the rectangular cutting pattern that you would use to make bookends.

Show rectangular cutting pattern here ⟶

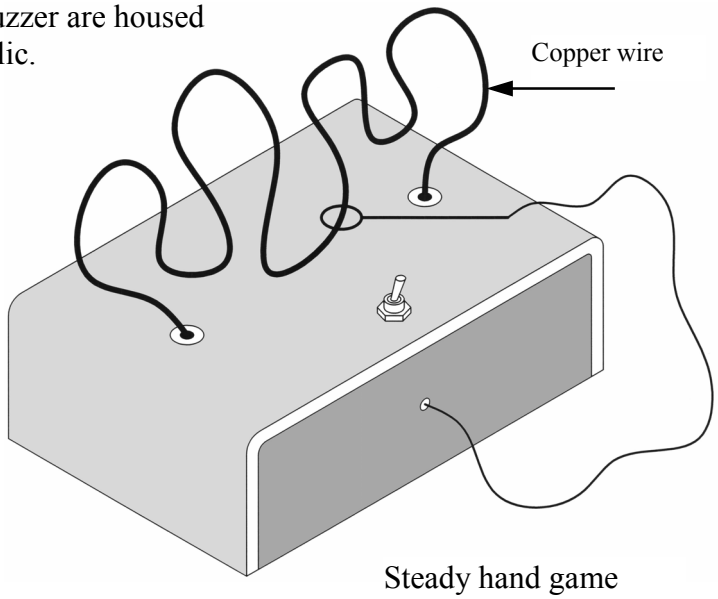
(b) In the space opposite, make a sketch of a design for a bookend from a material other than metal. 8 Marks

Name the material you have chosen.

Material: _____

_____

(c) A steady hand game for teaching children hand and eye co-ordination is shown. The battery and buzzer are housed inside the box. The box is made from acrylic. 12 Marks



Steady hand game

(i) A number of holes are drilled in the acrylic box. State two precautions that you would take when drilling these holes.

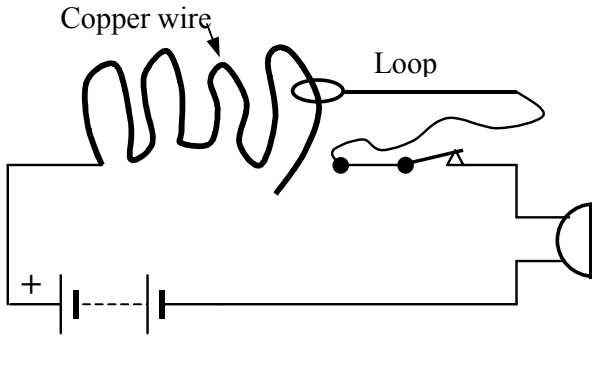
1. _____

_____

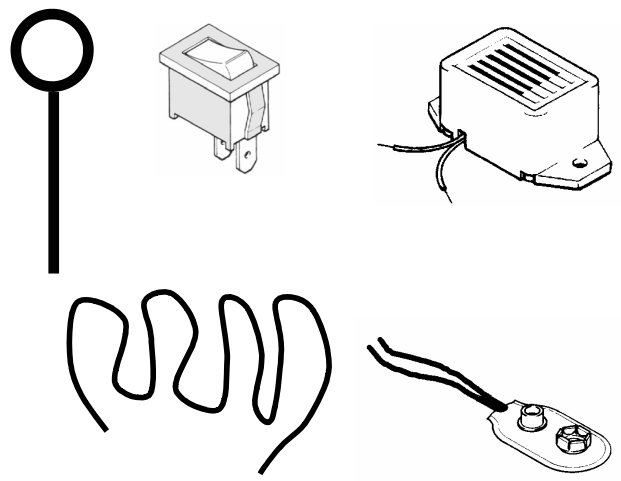
2. _____

_____

(ii) The circuit diagram for this game is shown below on the left. The components used are shown on the right. Using the circuit diagram as a guide, show how the components on the right are joined together to make the game.



Circuit diagram


Components

(d) When the loop touches the copper wire in the steady hand game a buzzer sounds. 8 Marks

(i) Name the two types of energy in this energy conversion:

Answer: From _____ to _____

(ii) The switch in the steady hand game circuit is a SPST switch. What does SPST stand for?

Answer: _____

(iii) Which of the following metals is the best conductor of electricity?
(i) Aluminium, (ii) Steel, (iii) Copper.

Answer: _____

4. 40 Marks

(a) List three ways in which technology has influenced the methods of constructing buildings. 9 Marks

1. _____

_____

2. _____

_____

3. _____

_____

(b) 9 Marks

List three ways in which technology can help to make the elderly feel safer in their homes.

1. _____

2. _____

3. _____

(c) 14 Marks

(i) List three technological developments that have influenced the movie industry in recent years.

1. _____

2. _____

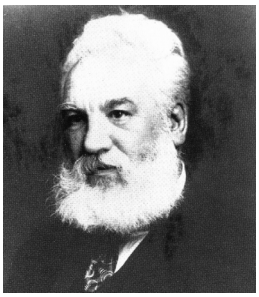
3. _____

(ii) There have been many developments in communications since Bell invented the first telephone. List three recent developments.

1. _____

2. _____

3. _____



Alexander Graham Bell

(d) Henry Ford introduced the idea of manufacturing cars on an assembly line. Name two other products which are manufactured on an assembly line and identify two advantages of this type of production. 8 Marks

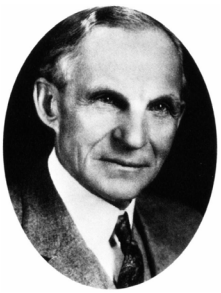
Product 1: _____ Product 2: _____

Advantage 1: _____

_____

Advantage 2: _____

_____



Henry Ford