

AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA

Leaving Certificate Applied - 2003

Vocational Specialism - Technology (240 marks)

Wednesday, 11th June 2003
Afternoon 2.00 p.m. to - 4.00 p.m.

For the Superintendent only

<p>Centre Stamp</p>

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

General Directions

1. Write your examination number in this space:

--

2. There are two sections in this paper.

Section 1 - Answer **all three** questions.

- **90 marks**

Q1 - Short answer questions

Q2 - Orthographic projection

Q3 - Safety

Section 2 - Five questions, answer **any three**.

- **150 marks**

Q1 - Introducing Technology

Q2 - Design and Manufacture

Q3 - Water Technology

Q4 - Electrical Understanding and Basic Electronics

Q5 - Tools

3. Write your answers in the spaces provided and include sketches as appropriate.

QUESTION 1.

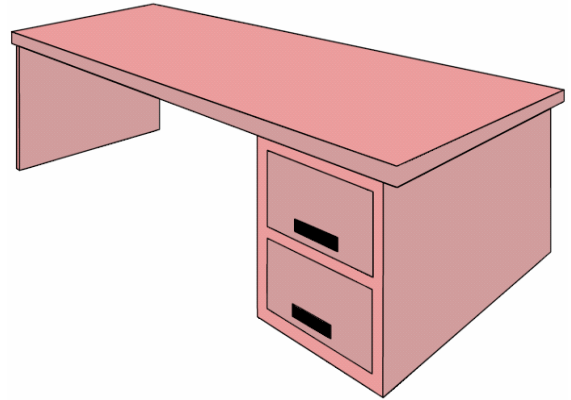
Short questions

(40 marks)

NOTE: Answer Ten short questions from Question 1 - all questions carry equal marks.

(a) Write a design brief for the desk shown.

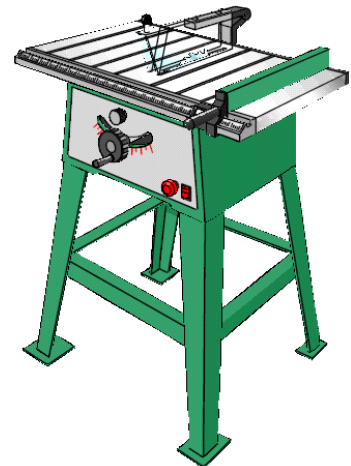
Design brief _____



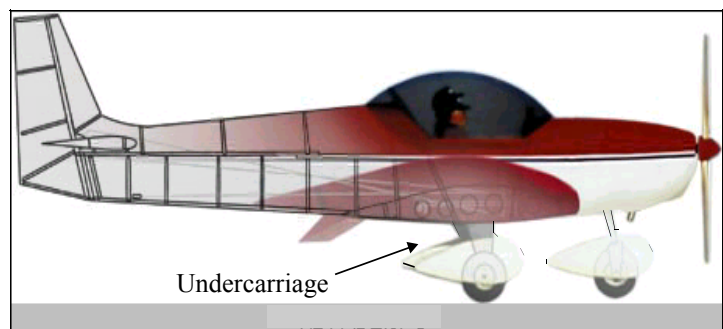
(b) (i) Name the electrical bench-tool shown,
 and
 (ii) State one safety precaution to be taken
 when using it.

(i) Tool: _____

(ii) Safety precaution: _____

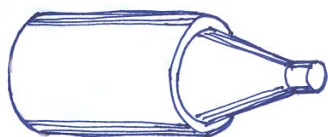


(c) Name a material which could be used to make
 the under-carriage of the small plane shown.

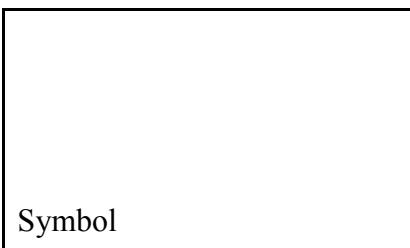


Material: _____

(d) Name the electrical component shown, and draw its symbol.

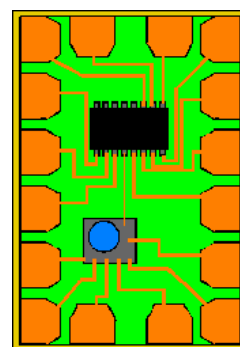


Name: _____



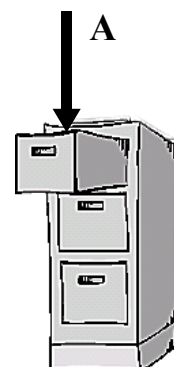
(e) Where is an electronic integrated circuit board like the one shown used?

An example of where it is used: _____



(f) What is the overall effect of the downward force A on the filing cabinet?

The result of force A on the filing cabinet is :



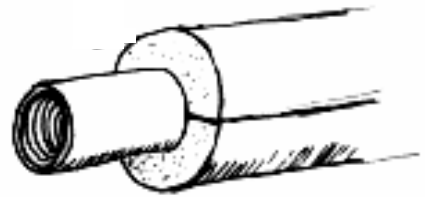
(g) Give one reason why an earth wire is connected to the pipe-work in a domestic plumbing system.

Reason: _____

- (h) 1. Why does the freezing of water in copper pipes result in water leaking?
2. How does the insulation shown help prevent the freezing of water?

1: _____

2: _____



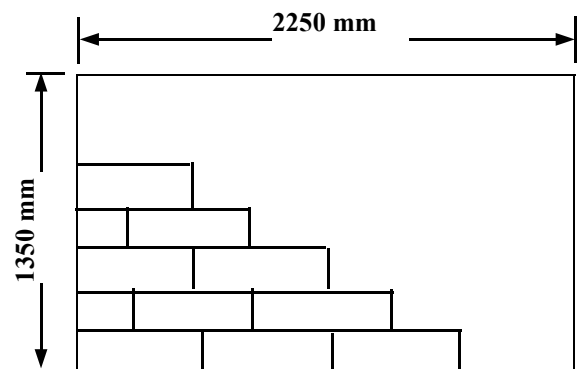
- (i) Give **ONE** advantage and **ONE** disadvantage of using cast materials to make items.

Advantage: _____

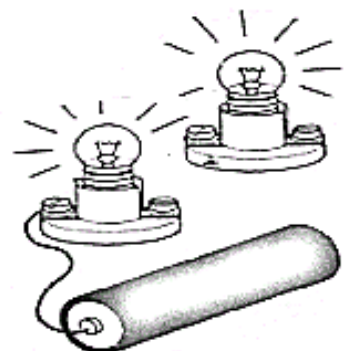
Disadvantage: _____

- (j) The diagram shows a portion of a block wall.
Calculate the number of blocks, each measuring
450mm x 225mm, required to build the wall.

Number of blocks required: _____



- (k) Complete the circuit so that the bulbs are connected in parallel.



(l) Give two situations where an electrical transformer should be used.

1. _____

2. _____

(m) Describe how wax is melted to prevent it from burning.

(n) The picture shows a modern water cylinder for a pressurised system having a diameter of 450mm and with provision for flow and return water pipes.

1. How is this cylinder different from the traditional type of vented copper cylinder?

2. Give **ONE** advantage of a pressurised system.

1. _____

2. _____



(o) Name an electrical appliance which is protected by each of the following fuse sizes.

3 Amp Fuse: _____

13 Amp Fuse: _____

Section 1- continued

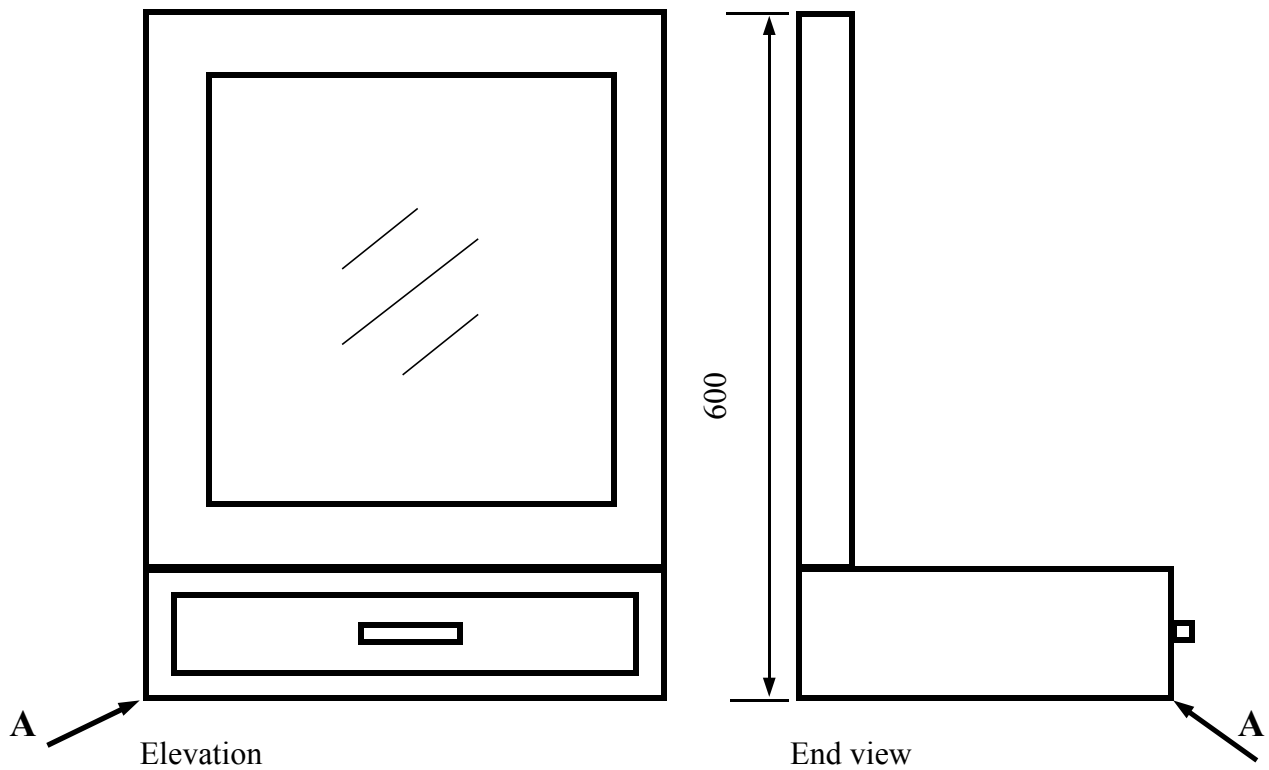
QUESTION 2.

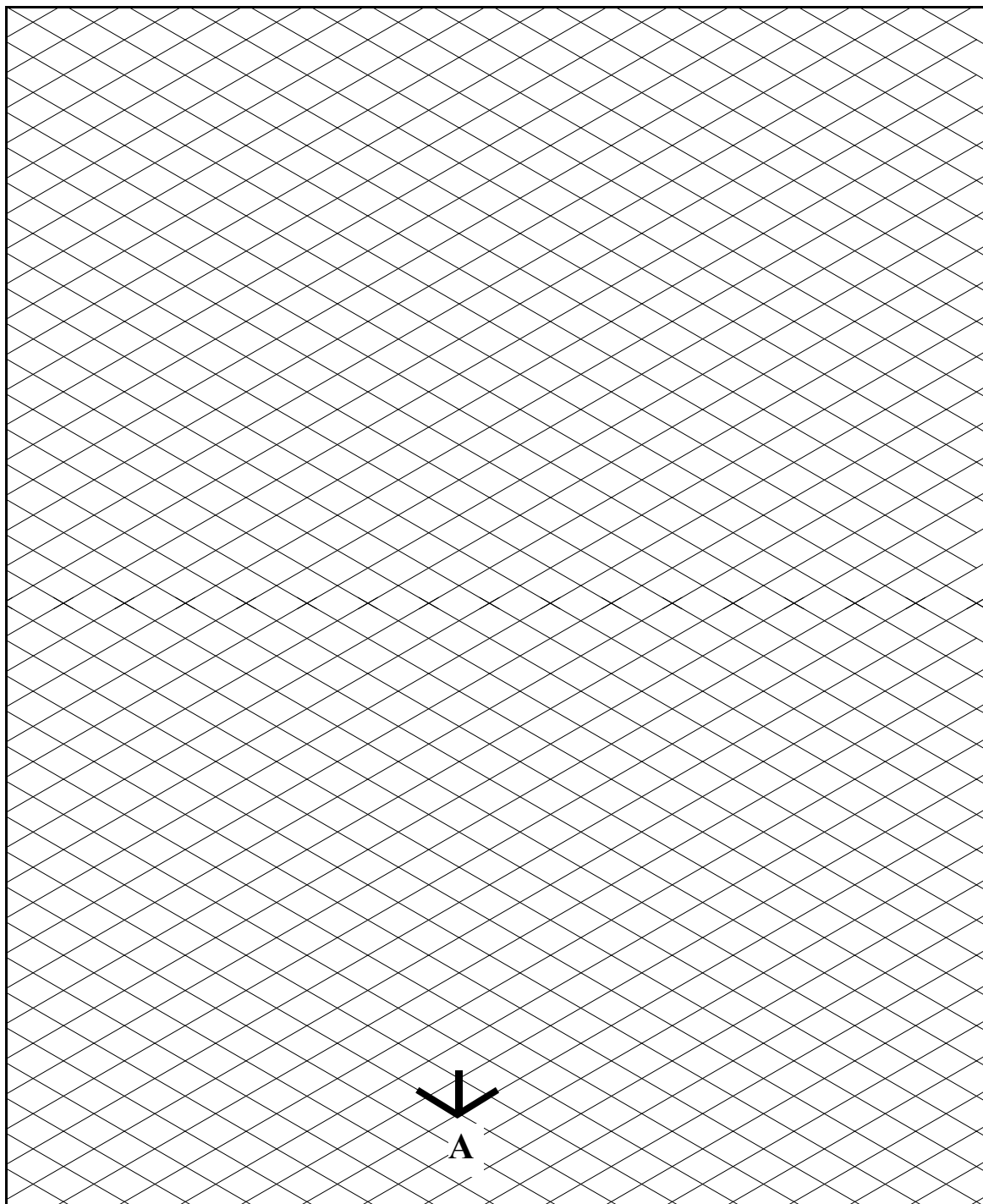
(30 marks)

Answer **ALL** parts

Orthographic views of a dressing table mirror are shown below.
The position of corner 'A' is also shown.

(a) Draw in proportion an isometric sketch of the mirror on the grid opposite.





- (b) Estimate the length and width of the mirror unit and show these dimensions on your drawing.


QUESTION 3.

Safety.

(20 marks)

Answer **ALL** parts.

- (a) Complete the chart below by filling in the name of the safety equipment and sketch the equipment for each location shown. One example is given below.

	SAFETY EQUIPMENT	SKETCH
BODY	PROTECTIVE CLOTHING	
FEET		
EYES		
FACE		
HANDS		

(b) Write down five safety rules for the Technology Room and give one reason for each rule.
The rules should apply to tools, electrical equipment or general safety.

Rule 1 _____

Reason _____

Rule 2 _____

Reason _____

Rule 3 _____

Reason _____

Rule 4 _____

Reason _____

Rule 5 _____

Reason _____

Section 2

150 marks

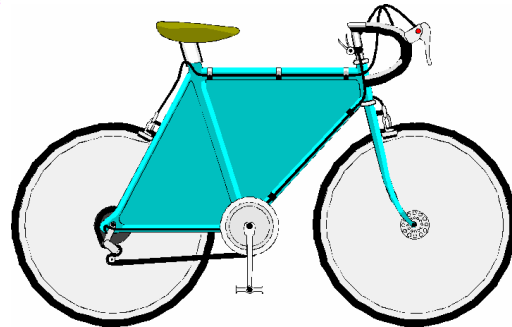
NOTE: Answer Any Three of the following five questions. All questions carry equal marks.

1. Introducing Technology

(50 marks)



A



B

The diagram shows a modern bike A and a racing bike B.

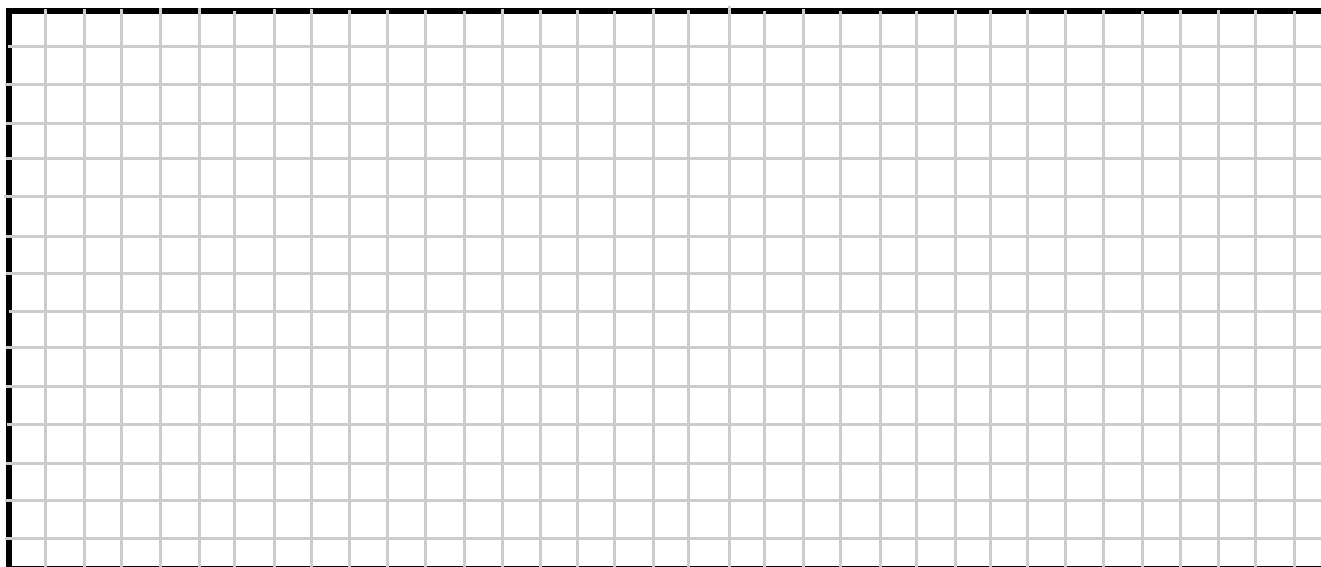
(a) List three design differences between bike A and bike B.

1. _____
2. _____
3. _____

(b) List four materials which are used in the manufacture of a bike.

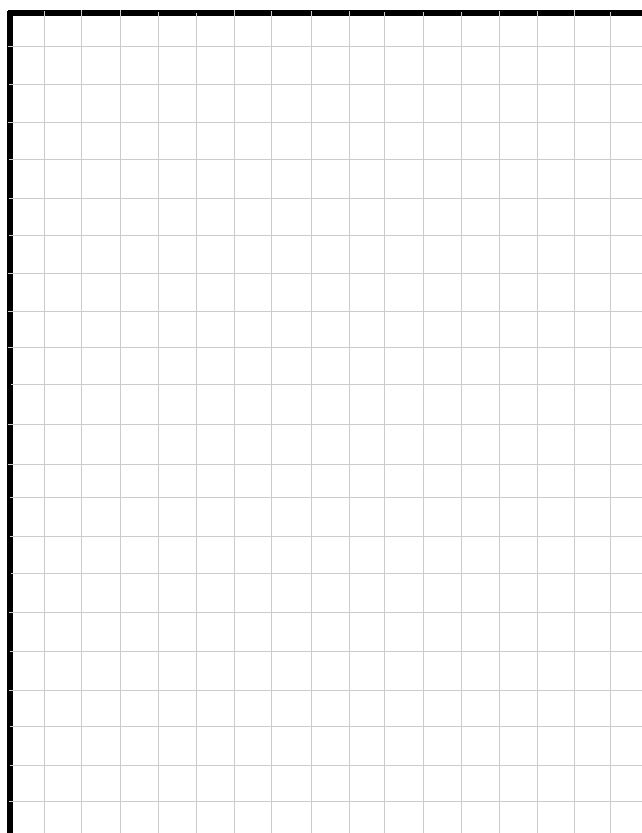
1. _____
2. _____
3. _____
4. _____

(c) In the grid below, sketch a design change to bike A which would make it easier to fit the bike into the boot of a car.



(d) Sketch and describe one design change that would make bike A more suitable for use by a young person learning to cycle. Sketch the design change in the space provided.

A design change:



Section 2 - continued

2. Design and Manufacture.

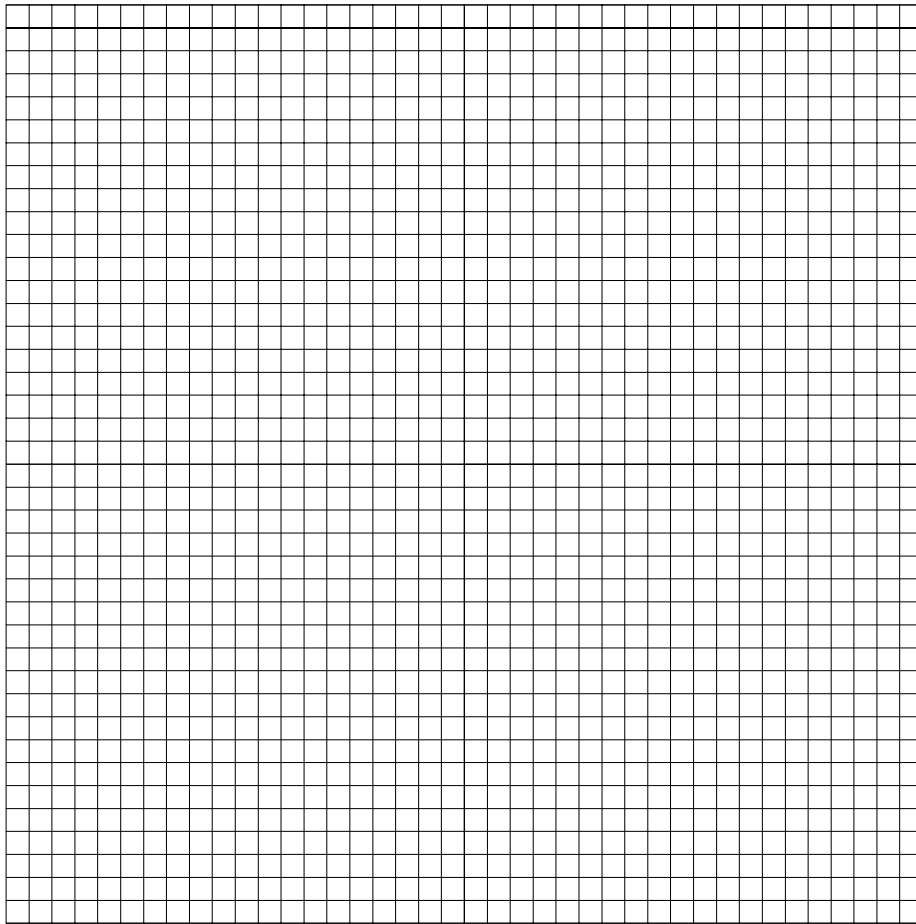
(50 marks)

In this module you were required to design and make a product -
e.g. a storage unit or a product made from a material suitable for casting.

Name **ONE** product you made during this module.

Name: _____

(a) On the grid paper below, draw a freehand sketch of the product you made.



(b) Describe two research methods you used to get
information for your design.

(c) Name the finish you applied to the product, and describe the procedures you followed when applying the finish.

Finish: _____

Procedure: _____

(d) List three important headings under which you would ask questions when evaluating the completed product.

1. _____

2. _____

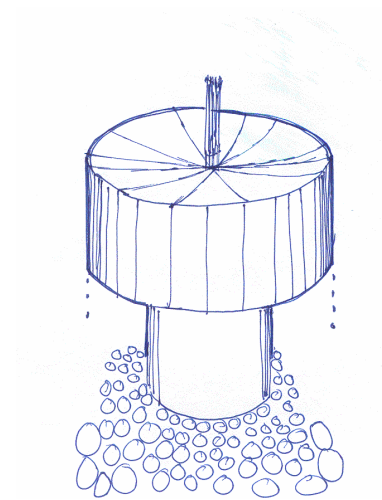
3. _____

Section 2: continued

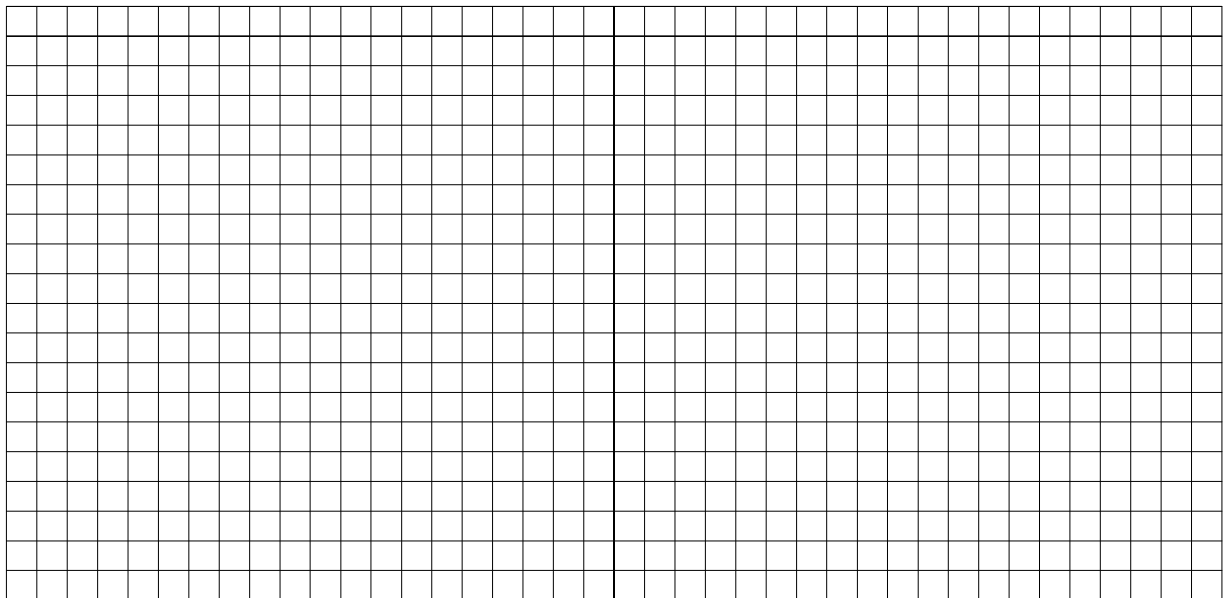
3. Water Technology.

(50 marks)

The diagram shows a garden fountain made in stone with water collection underneath.



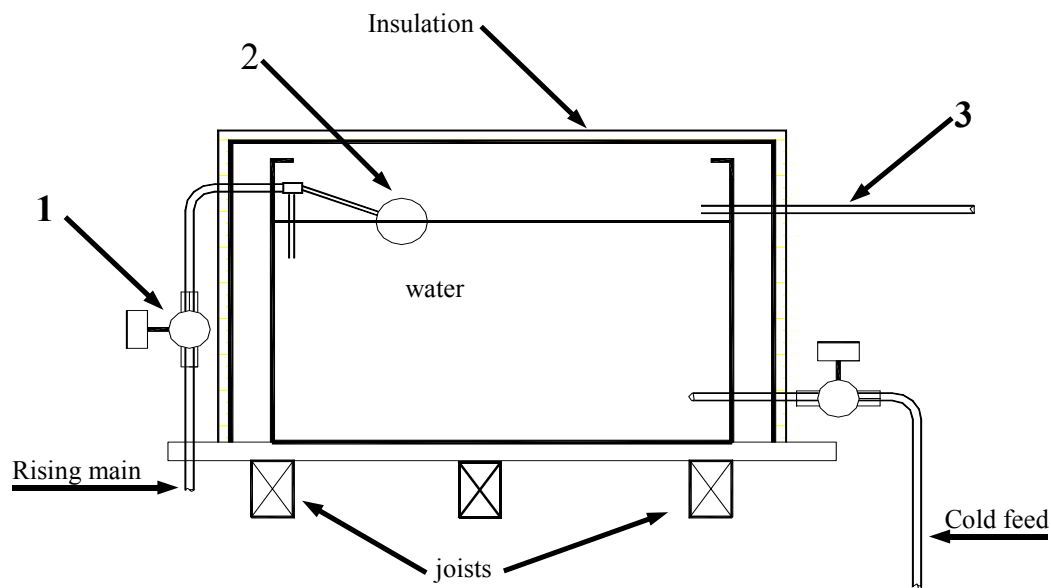
- (a) On the grid below show how the water could be continuously returned to the top of the fountain from a sump at the base.



- (b) List two safety considerations to be observed when installing in a garden water fountain.

1. _____
2. _____

(c) A cold water storage tank is shown in the diagram.



What is the function of the parts labelled 1, 2, and 3.

1. _____
2. _____
3. _____

(d) Water in public water schemes passes through a *treatment process* before it is distributed to homes.

1. Explain why water needs to be *treated*.
2. Name **ONE** chemical which is added to the water.
3. Name **ONE** other process which occurs at a treatment plant.

1. _____

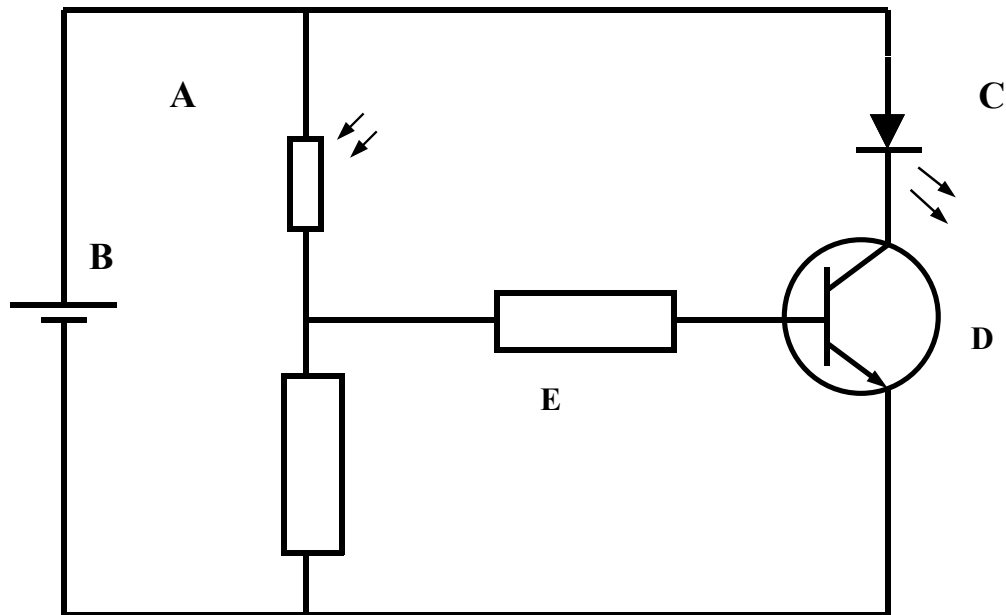
2. _____

3. _____

4. Electrical Understanding and Basic Electronics

(50 marks)

The circuit diagram for an electronic sensor is shown below.



(a) Name any three of the components and state the function of the selected component and the associated letter.

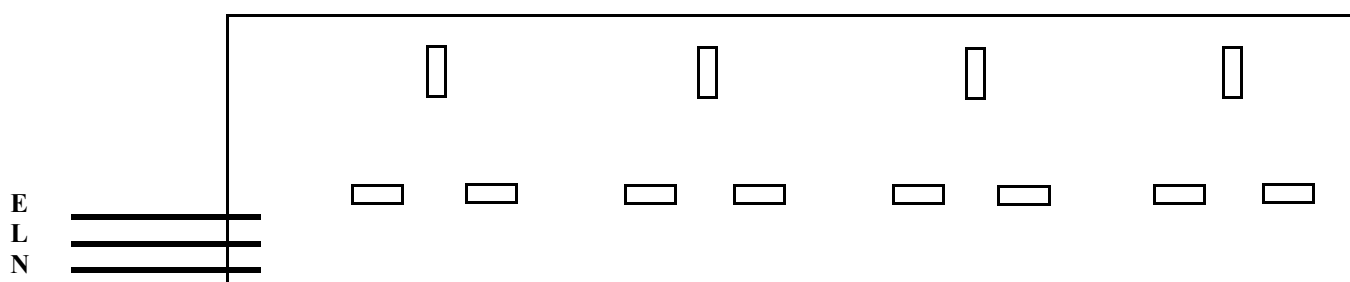
- (i) _____
- (ii) _____
- (iii) _____

(b) A multimetre is shown in the sketch. List **TWO** checks which could be made on the above circuit with a multimetre.

- 1. _____
- _____
- 2. _____
- _____



- (c) The picture shows a multiple extension socket. Complete the electrical circuit for connecting a four-gang extension socket.



- (d) Why is it necessary to have a power-unit when charging a mobile phone from an electrical socket in your home?

Answer: _____



5. Tools.

(50 marks)

A range of different tools is shown below.



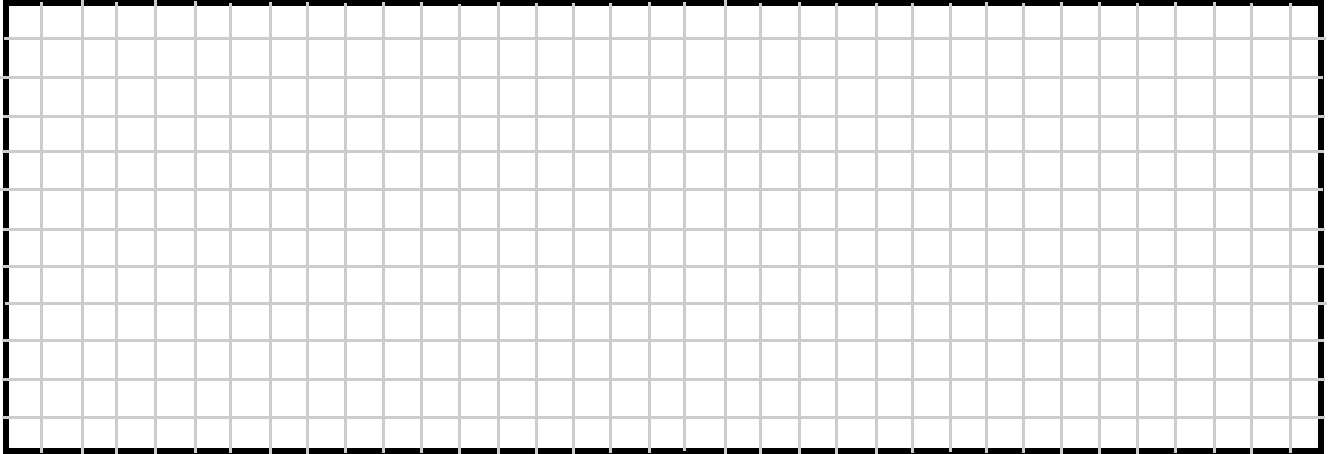
(a) Name and give one use of any five of these tools.

Tool number	Name	Use

- (b) Select one tool which you used during the module on *Electrical Understanding and Basic Electronics* and one tool you used during the module on *Water Technology*, name each tool, sketch it and explain its use.

Tool (used in the module on Electrical Understanding and Basic Electronics)

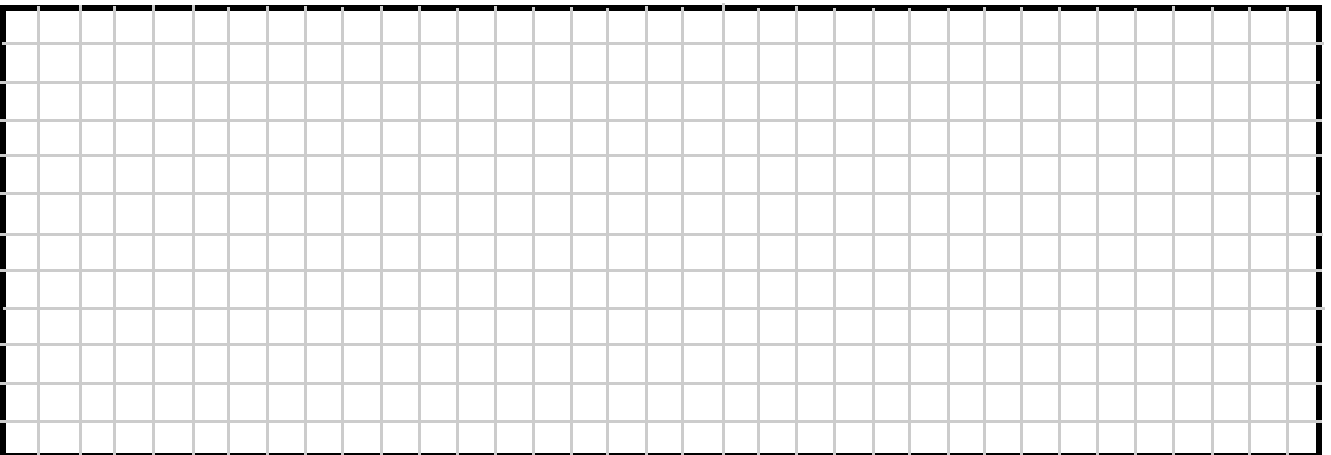
Name _____



Use _____

Tool (used during the module on Water Technology)

Name _____



Use _____

Blank Page