



**Coimisiún na Scrúduithe Stáit**  
**State Examinations Commission**  
***Leaving Certificate Applied 2008***

**Vocational Specialism - Technology**  
**(240 Marks)**

**Wednesday 11th June, Afternoon 2.00 pm to 4.00 pm**

*For the superintendent only*

<p><b>Centre Stamp</b></p>
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***General Directions***

1. Write your examination number in this space:
  
2. There are two sections in this paper.
 

Section 1– Answer <b>all three</b> questions.	- 90 marks
<b>Q1. - Short answer questions</b>	
<b>Q2. - Graphical Communication</b>	
<b>Q3. - Health and Safety</b>	
Section 2– Five questions, answer <b>any three</b>	- 150 marks
<b>Q1. - Introducing Technology</b>	
<b>Q2. - Design and Manufacture</b>	
<b>Q3. - Water Technology</b>	
<b>Q4. - Electrical Understanding and Basic Electronics</b>	
<b>Q5. - Tools and Equipment</b>	
  
3. Write your answers in the spaces provided and include sketches (in pencil) as appropriate.

Question 1

(40 marks)

1. Answer **any TEN** of the following **FIFTEEN** short questions

(a) The picture shows a set of taps with a chrome-plated finish. List **two** advantages of using this finish.

Advantage 1 \_\_\_\_\_

\_\_\_\_\_

Advantage 2 \_\_\_\_\_

\_\_\_\_\_



(b) The picture of a 7.2 Mega-pixel digital camera is shown. What does the description “7.2 Mega-pixel” tell us about this camera?

Answer: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



(c) The picture shows a set of HSS drill bits. What type of material would you drill with these bits and what does the abbreviation HSS stand for?

Material \_\_\_\_\_

HSS \_\_\_\_\_

\_\_\_\_\_



(d) The picture shows a latching push-switch.  
Explain the term “latching”.

Latching \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



(e) List **two** advantages of using CFL light bulbs.

Advantage 1 \_\_\_\_\_  
\_\_\_\_\_  
Advantage 2 \_\_\_\_\_  
\_\_\_\_\_



(f) List **two** alternative energy sources that can be used to heat our homes.

1 \_\_\_\_\_  
\_\_\_\_\_  
2. \_\_\_\_\_  
\_\_\_\_\_



(g) Name the type of screw shown and name the material for which it is mostly used.

Type of screw \_\_\_\_\_  
\_\_\_\_\_  
Material \_\_\_\_\_



(h) A pair of MCBs is shown. What does MCB stand for and what is its function?

MCB \_\_\_\_\_

Function \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_



(i) Name the measuring tool shown and give **one** example of what it can be used to measure.

Name \_\_\_\_\_

Example \_\_\_\_\_

\_\_\_\_\_



(j) The lamp shown has a built-in magnifying lens. Suggest a use for this particular type of lamp.

Use \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



(k) Determine the power of this toaster if the current is 0.5Amps and the voltage is 240 Volts.



(l) Identify this tool and explain what it is used for.

Name \_\_\_\_\_

Use \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_



(m) List **three** electrical quantities that can be measured with a multimeter.

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_



(n) Name the machine shown and give one use for it.

Name \_\_\_\_\_

Use \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_



(o) Using the first three colours on the resistor below and the colour code opposite, determine the resistance of this resistor.

Resistance \_\_\_\_\_



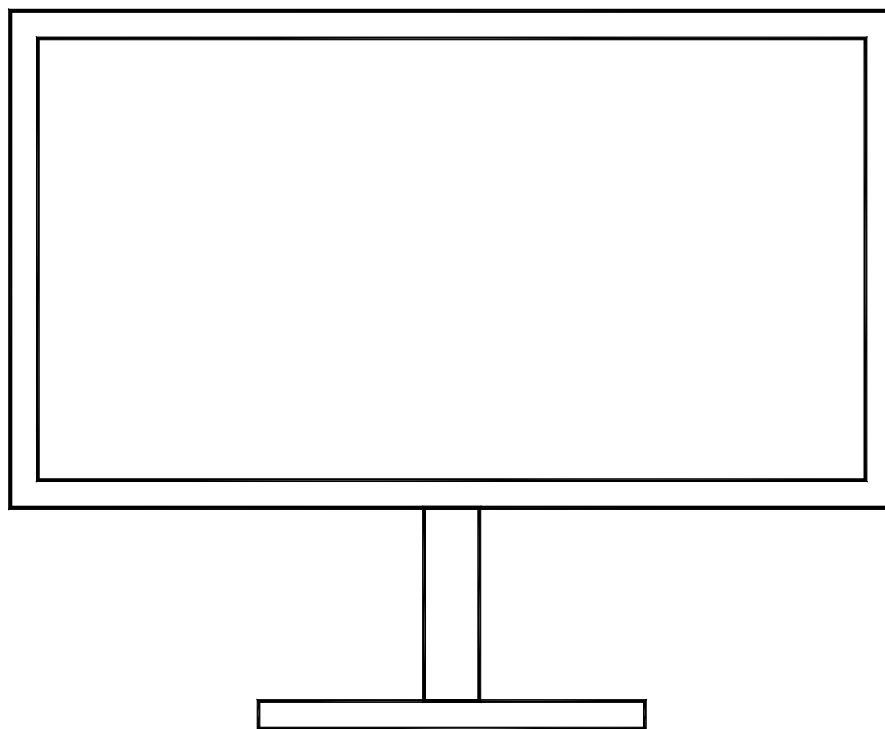
	0
	1
	2
	3
	4
	5
	6
	7
	8
	9

## Compulsory

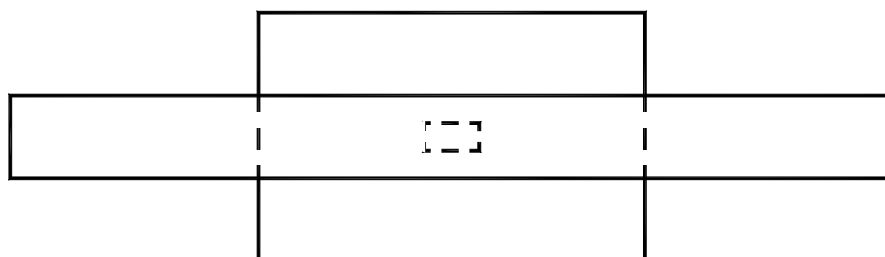
### 2. Graphical Communication

The plan and elevation of a flat screen television is shown.

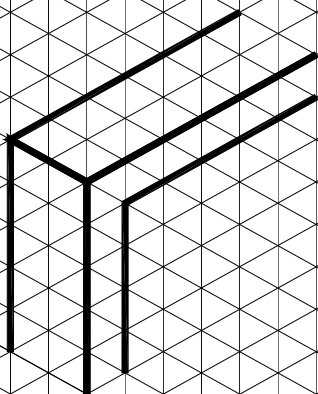
- (a) Complete the isometric drawing of the television on the grid opposite.  
Maintain the proportions of the television in the isometric drawing.



ELEVATION



PLAN



(b) Estimate and show 4 measurements on your completed drawing.

# Compulsory

## 3. Health and Safety

(a) (1) A pair of safety glasses is shown. Identify **three** processes in technology where it is necessary to wear safety glasses.

1 \_\_\_\_\_  
\_\_\_\_\_  
2 \_\_\_\_\_  
\_\_\_\_\_  
3 \_\_\_\_\_  
\_\_\_\_\_



Safety glasses

(2) Suggest **two** reasons why dust extraction is very important in the workshop.

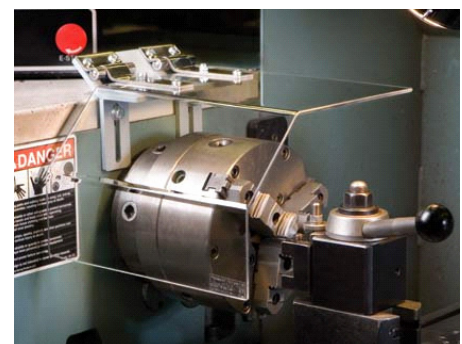
1 \_\_\_\_\_  
\_\_\_\_\_  
2 \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Dust extractor

(3) Explain why it is so important to have a cover over the chuck of a lathe.

Explanation: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Lathe chuck shield

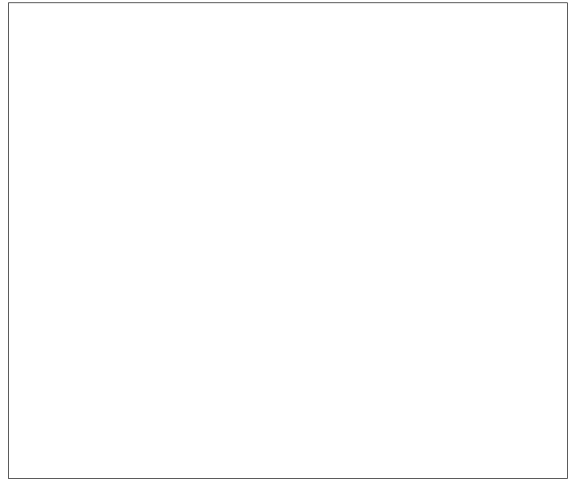


(b) (1) Name **two** machines other than a lathe that require the use of a clear guard over the moving parts.

1 \_\_\_\_\_

2 \_\_\_\_\_

(2) Make a sketch to illustrate the position of the cover on **one** of these machines.



(c) (1) Where in your school would you find an emergency stop button and give **two** examples of when it could be used.

Location \_\_\_\_\_

\_\_\_\_\_

Example 1 \_\_\_\_\_

\_\_\_\_\_

Example 2 \_\_\_\_\_

\_\_\_\_\_

(2) Some glues used in the workshop are very strong smelling. Name **one** such glue and describe **two** safety precautions which should be taken when using this glue.

Name \_\_\_\_\_

1 \_\_\_\_\_

\_\_\_\_\_

2 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



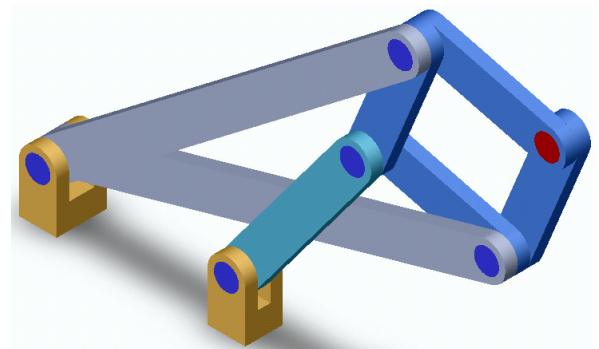
Emergency stop button

Answer ANY THREE Questions from this section

**1. Introducing Technology**

(50 marks)

(a) A solid model of a structural framework is shown. Sketch an elevation of the framework in the space provided.



Structural Framework

(b) The playing of electronic media has changed dramatically in recent years.

(1) How has the playing of music and video changed?

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(2) Suggest **three** design features which Apple considered in the design of the iPod.

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_



Apple iPod

(c) Injection moulding is used widely in plastic product manufacturing.

(1) Briefly explain the process of injection moulding.

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Injection moulded plastic chair

(2) Name **two** other products besides the plastic chair shown which are injection moulded.

1 \_\_\_\_\_

2 \_\_\_\_\_

(d) An alloy wheel is shown opposite.

(1) Explain the term “alloy”.

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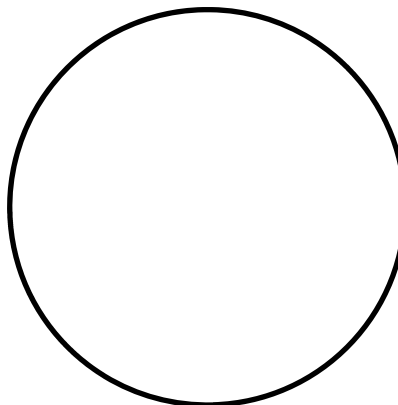
Typical alloy wheel

(2) Identify **two** other uses for alloys.

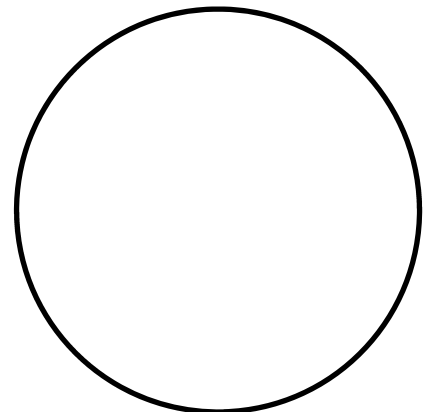
1 \_\_\_\_\_

2 \_\_\_\_\_

(3) Using the wheel outlines opposite, sketch your designs for **two** different alloy wheels. Use pencil and shade where appropriate.



Design A



Design B

## 2. Design and Manufacture

(50 marks)

(a) A picture of a bicycle with a wooden frame is shown.

(1) Name a suitable manufactured board from which to make Part A.

Answer \_\_\_\_\_

(2) Name a suitable hardwood from which to make the seat and list **three** tools/machines used in its manufacture.

Suitable hardwood \_\_\_\_\_

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_



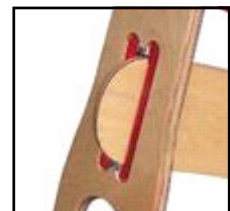
Wooden bicycle

(3) In the space below sketch details of how the wheel is attached to the front fork of the bicycle. The assembly must be free moving and secure.



Wheel assembly

(4) In the space below sketch details of how the front fork is attached to the bicycle frame.



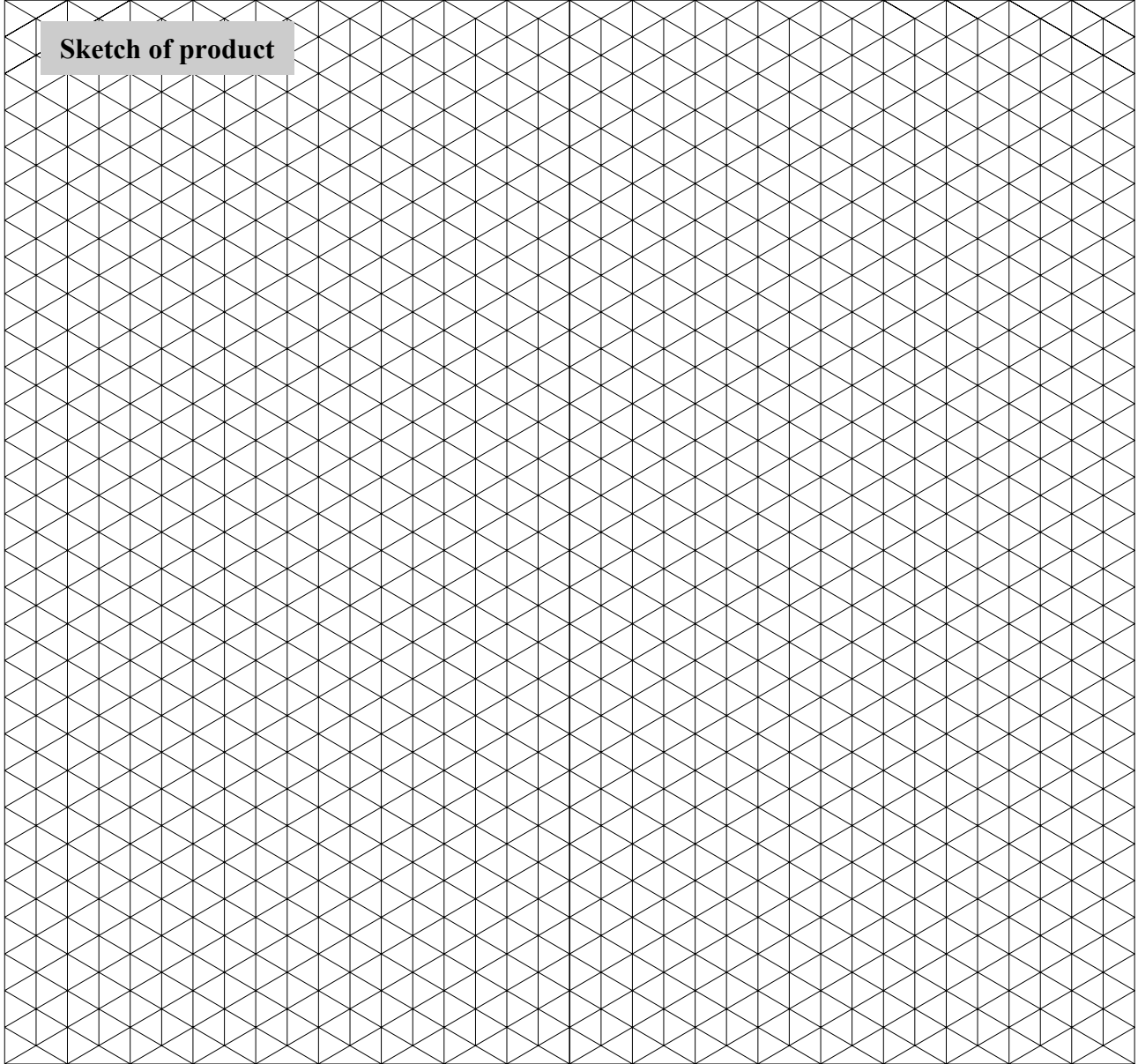
Frame assembly

- (b) (1) In the *Design and Manufacture* module you designed and manufactured a product. Name the product you made and make an isometric sketch of it on the grid below.

Product Name \_\_\_\_\_

\_\_\_\_\_

**Sketch of product**



- (2) State two aims/objectives that you considered before designing the project.

Aim/Objective 1 \_\_\_\_\_

\_\_\_\_\_

Aim/Objective 2 \_\_\_\_\_

\_\_\_\_\_

### 3. Water Technology

(50 marks)

(a) The picture shows a P-trap for waste water.

(1) Where could this trap be used?

\_\_\_\_\_

Name another type of trap suitable for this purpose.

\_\_\_\_\_

(2) What is the function of a waste water trap?

Function \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Why do waste traps have rubber seals? \_\_\_\_\_

\_\_\_\_\_



(b) (1) Name the tool shown opposite and explain how it is used.

Name \_\_\_\_\_

How it is used \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(2) The pictures show both a compression and a solder fitting as used in plumbing. Explain briefly how each fitting is properly joined to a copper pipe.

Compression fitting \_\_\_\_\_

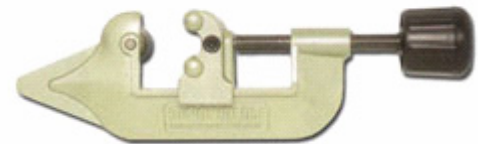
\_\_\_\_\_

\_\_\_\_\_

Solder fitting \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



(c) (1) Describe **two** steps which may be taken to check if your tap water is safe to drink.

1 \_\_\_\_\_

\_\_\_\_\_

2 \_\_\_\_\_

\_\_\_\_\_

(2) The cold water tap in the kitchen sink is connected directly to the rising main. Explain why this is done.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



Drinking water

(d) The picture opposite shows a solar-powered 12V DC garden water-pump system.

(1) List **two** advantages of this system compared to an AC mains-powered pump.

1 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

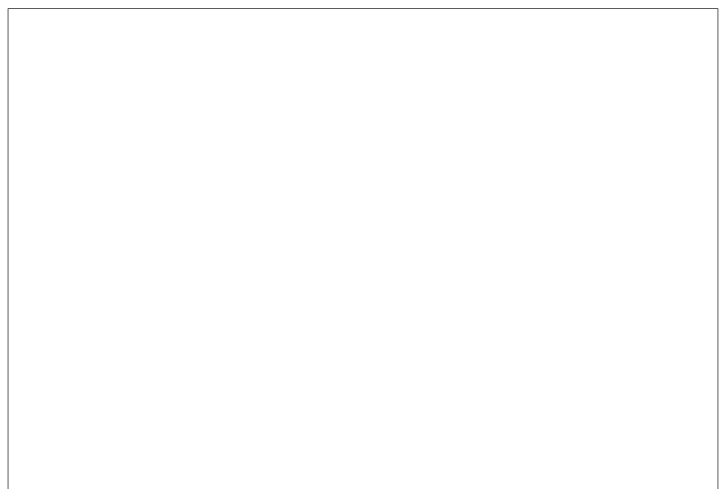
2 \_\_\_\_\_

\_\_\_\_\_

(2) The pump for a garden water-feature is to be driven by the solar cell above. The solar cell is mounted on an aluminium frame at the edge of a pond. In the space opposite, sketch a design for this frame with the solar cell in place.



12V DC Solar-powered water pump



## 4. Understanding of Electricity and Electronics

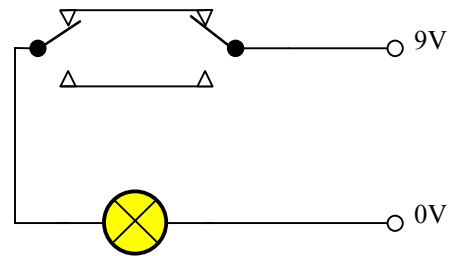
(50 marks)

- (a) State the energy conversion for the following electronic output devices.

Device	Energy conversion	
	From	To
Bulb		
Speaker		
Microphone		
Battery		

- (b) The circuit diagram for the two-way switching of a DC bulb is shown opposite. The components necessary to build this circuit are given below.

- (1) Show the wire connections for these components to correspond with the circuit diagram.



Circuit diagram

- (2) Name the type of switches used in this circuit.

Name \_\_\_\_\_

- (3) Explain the term “two-way switch”.

\_\_\_\_\_  
\_\_\_\_\_

- (4) If the current flow through the bulb is 90mA (0.09A) when the voltage is 9V calculate the resistance of the bulb.

Calculation



- (c) (1) The picture opposite shows two different fittings for a table lamp. The electric cable required for the brass fitting is different to that required for the plastic fitting. Explain what this difference is and why it is different.

Difference \_\_\_\_\_

\_\_\_\_\_

Why? \_\_\_\_\_

\_\_\_\_\_



Lamp Fittings

- (2) What is the cost of operating the 2kW electric grill shown for 1.5 hrs if one unit of electricity costs 20cent (€0.20)?



Electric Grill

- (3) Calculate the fuse size for a 480W electric hedge trimmer operating at 240V. Select your fuse from the following list: 1A, 5A, 10A or 13A. Note: (Power = Voltage x Current).



Electric hedge trimmer

- (4) Explain the following terms associated with domestic electricity supply:

RCD \_\_\_\_\_

\_\_\_\_\_

Bonding \_\_\_\_\_

\_\_\_\_\_

kWhr \_\_\_\_\_

\_\_\_\_\_

Current \_\_\_\_\_

## 5. Tools & Equipment

(50 marks)

(a) A range of equipment found in workshops is shown.

1.



2.



3.



4.



Name each piece of equipment and give its use.

No.	Name	Use
1		
2		
3		
4		

(b) Bandsaws require regular maintenance. Describe **four** parts of a bandsaw which should be regularly checked.


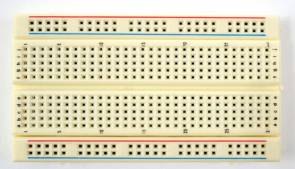


- 1 \_\_\_\_\_
- 2 \_\_\_\_\_
- 3 \_\_\_\_\_
- 4 \_\_\_\_\_



(c) Sketch **four** of the following tools in the space below.

Wood chisel	Junior hacksaw	Sliding bevel	Spring dividers	Ring spanner

(d) Identify each piece of electronic equipment shown and discuss its use.

Equipment	Name and use
	
	
	
	

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