

GRADE  
9+

## Extended Programme

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**DESIGN & TECHNOLOGY**

**Practice Paper 1**  
**50 Minutes**

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**Read these instructions first**

- Write your name in the space provided below.
- Use black or blue ink.
- HB pencils may be used for the diagrams / sketches only.
- Do not use correction fluid.
- Read each question carefully.
- All answers must be written in the spaces provided.
- Answer all questions.
- The number of marks is given in the brackets [ ] at the end of each question or part question.
- The total mark for this paper is 25 marks.
- For Question 4:
  - All construction lines must be left on the drawing.
  - All dimensions are in millimetres.

**Name of student :** .....



### Question 1 (3 marks)

Circle the correct answer as shown in the example.

**Example:** Which one of the following materials is a metal?

- A Pine
  - B Aluminium
  - C Nylon
  - D Rubber
- 

(1) Which one of the following is not considered as a green energy source?

- A coal
- B solar
- C hydro power
- D wind

(2) A ..... is used to cut large-sized wood or boards.

- A coping saw
- B handsaw
- C hacksaw
- D chisel

(3) ..... involves sketching a range of ideas as possible solutions.

- A Research and analysis
- B Realisation
- C Generation of ideas
- D Evaluation of ideas

## Question 2 (4 marks)

Fill in the blanks with the appropriate word from the list given below.

(pneumatics, softwood, bamboo fibre, acrylic, **ferrous**, hydraulics)

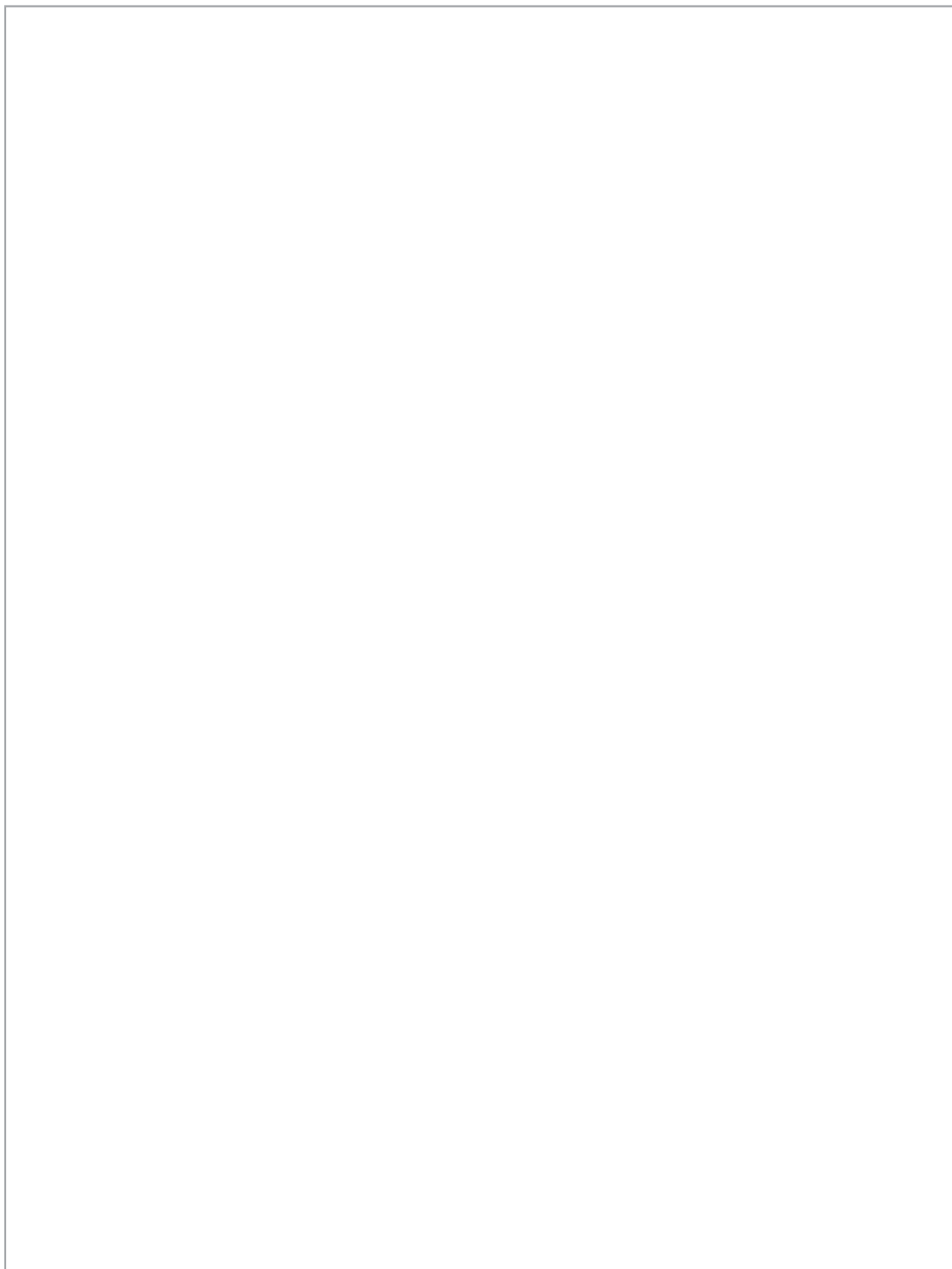
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*Example:* Stainless steel is a **ferrous** metal.

- (1) ..... is considered as an eco-material.
- (2) In ....., compressed air is used to achieve mechanical motion.
- (3) ..... is a thermoplastic material.
- (4) A ..... tree grows better in cold climates.

**Question 3 (3 marks)**

Sketch a try-square in the space provided.



**Question 4 (15 marks)**

**Figure 1** shows the front, top and side views of a shaped block. In the space provided, draw the oblique projection of the block with corner C as the starting point.

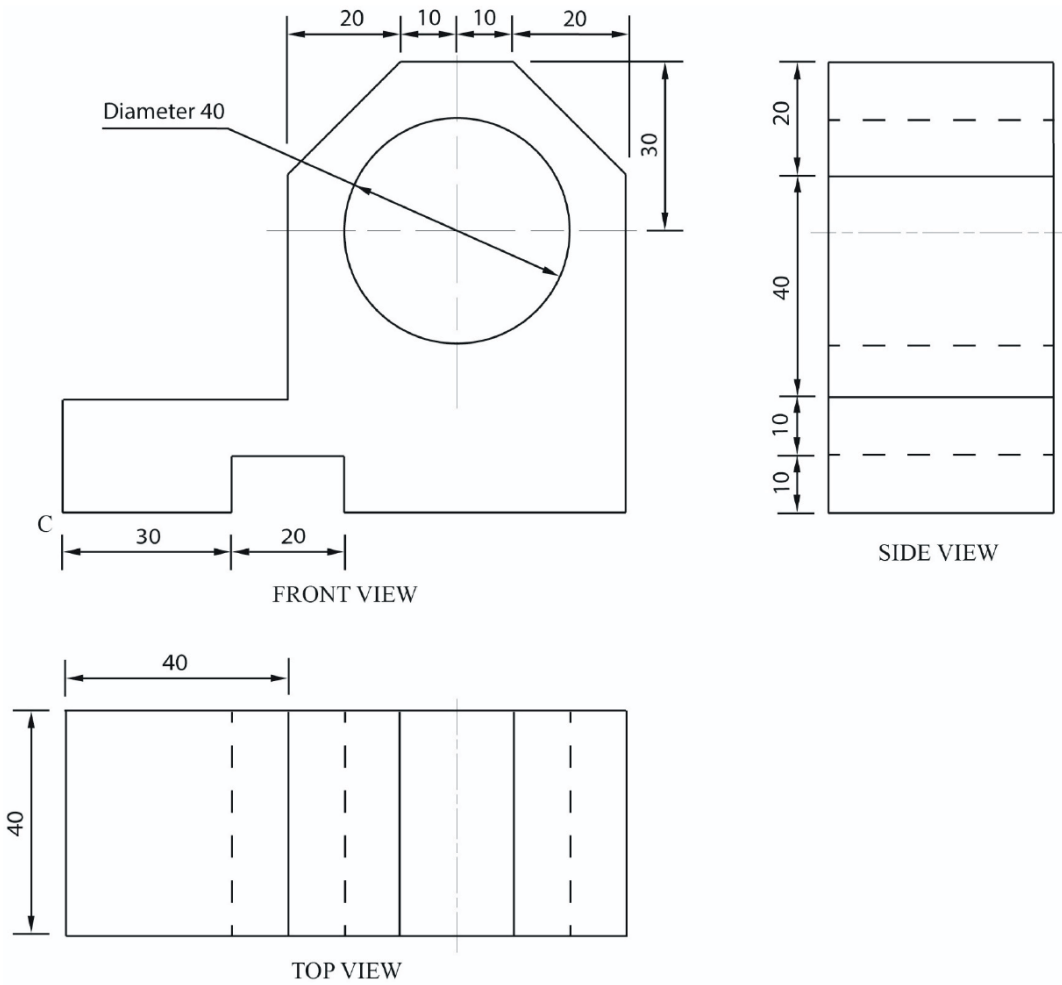
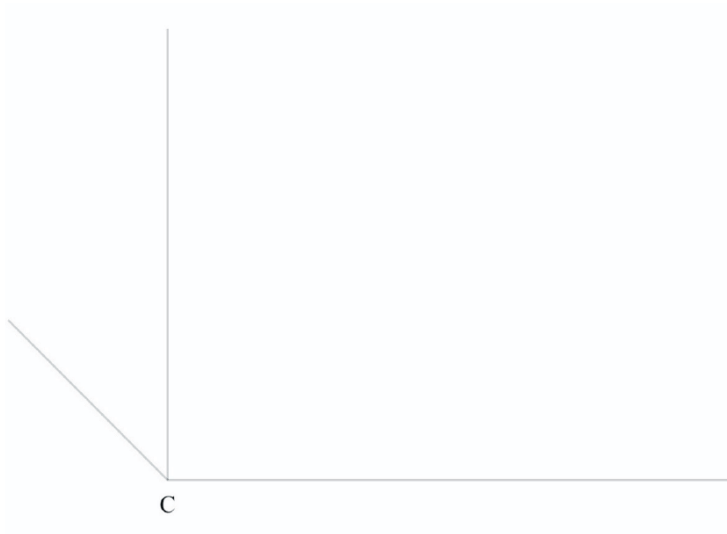


Figure 1





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## Extended Programme

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**DESIGN & TECHNOLOGY**

**Practice Paper 2**  
**50 Minutes**

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- The total mark for this paper is 25 marks.
- For Question 4:
  - All construction lines must be left on the drawing.
  - All dimensions are in millimetres.

**Name of student :** .....



### Question 1 (3 marks)

Circle the correct answer as shown in the example.

**Example:** ..... is made by sandwiching softwood strips between hardwood veneers.

- A Chipboard
  - B MDF
  - C Blockboard
  - D Plywood
- 

(1) Figure 1 shows a safety sign which indicates that you should .....



Figure 1

- A wear goggles
- B wear gloves
- C wear apron
- D wear an ear muff

(2) An example of a ferrous metal is .....

- A tin
- B mild steel
- C aluminium
- D copper

(3) Figure 2 shows a .....



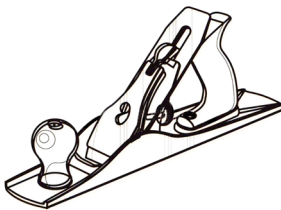
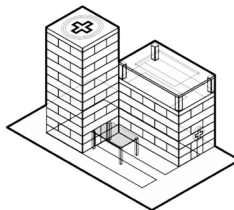
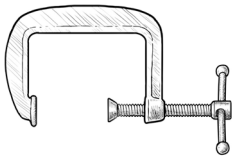
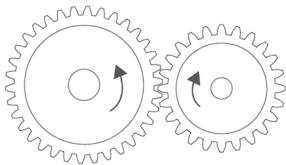
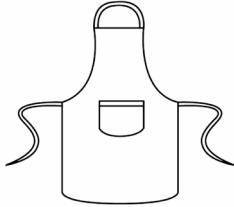
Figure 2

- A coping saw
- B tenon saw
- C hacksaw
- D jack plane

## Question 2 (4 marks)

Match the pictures shown in **Column A** to their corresponding descriptions in **Column B**. An example has been done for you.

### Column A



### Column B

Pictorial projection

Apron

Jack plane

Gears

Mallet

G-clamp

**Question 3 (3 marks)**

**Figure 3** shows a mobile phone. A holder is required for the mobile phone to keep it on a table.

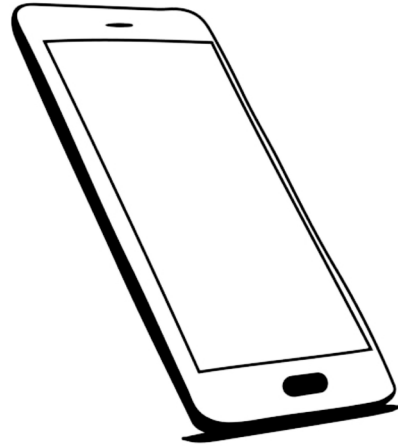


Figure 3

Sketch **one idea** for the mobile phone holder in the space provided.

**Question 4 (15 marks)**

**Figure 4** shows the front, top and side views of a shaped block. In the space provided, draw the isometric projection of the block with **corner A** as the starting point.

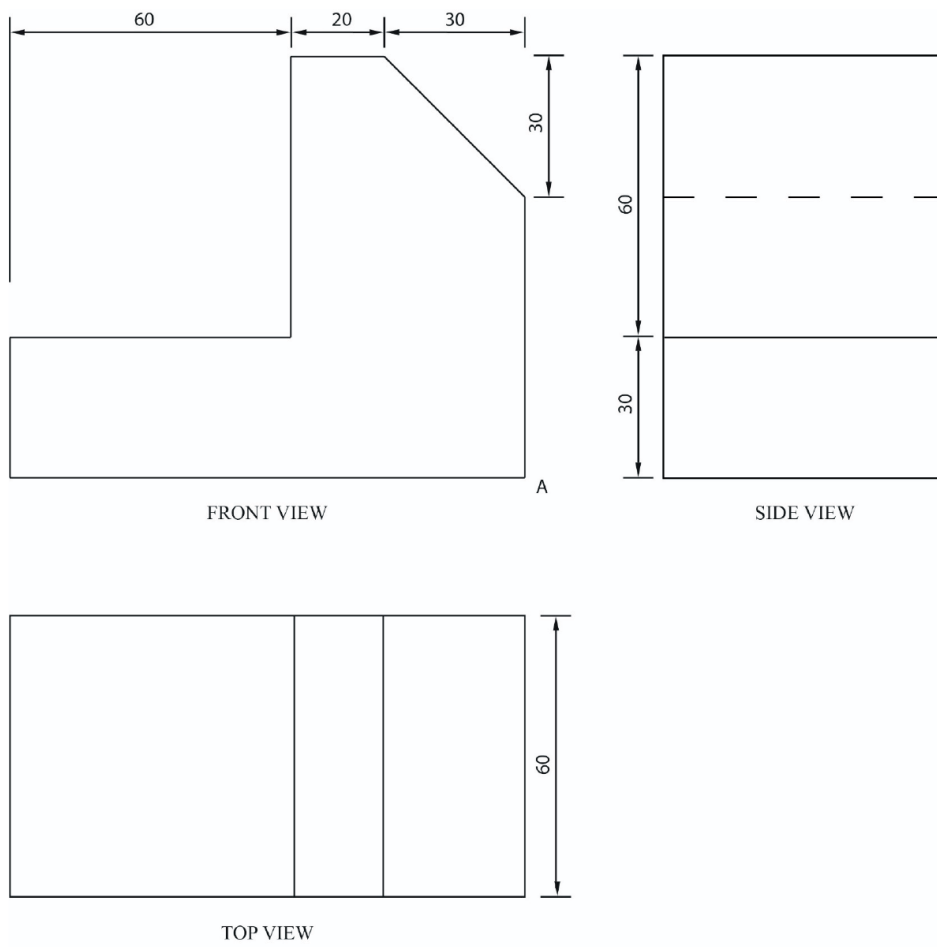
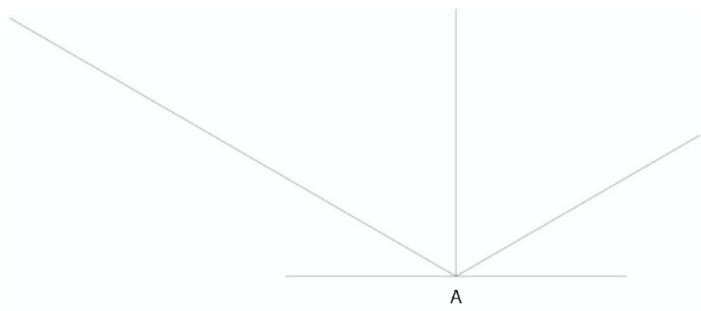


Figure 4





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## Extended Programme

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**DESIGN & TECHNOLOGY**

**Practice Paper 3**  
**50 Minutes**

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- Answer all questions.
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- The total mark for this paper is 25 marks.
- For Question 4:
  - All construction lines must be left on the drawing.
  - All dimensions are in millimetres.

**Name of student :** .....



### Question 1 (3 marks)

Circle the correct answer as shown in the example.

**Example:** It is a drawing representing 3D object in different 2D views.

- A Oblique projection
  - B Orthographic projection
  - C Planometric projection
  - D Isometric projection
- 

(1) ..... is an example of an eco-material.

- A Coconut coir
- B Pine
- C Plastic bag
- D Epoxy resin

(2) Figure 1 is an eco-label. It indicates a ..... product.



Figure 1

- A recyclable
- B toxic
- C compostable
- D biodegradable

(3) The motion of a minute hand of a clock is .....

- A oscillating
- B linear
- C reciprocating
- D rotary

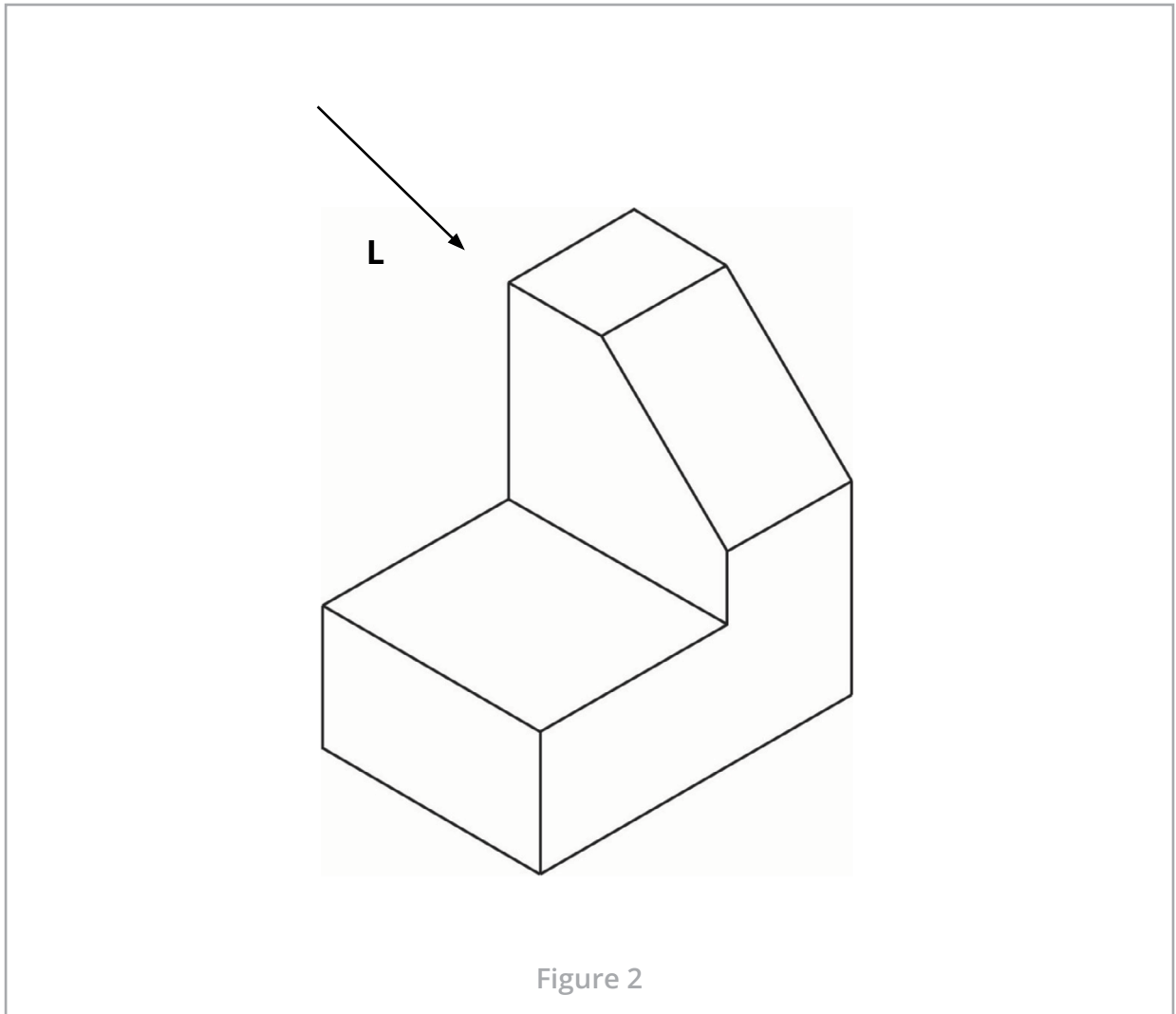
## Question 2 (3 marks)

Put a tick ( ✓ ) in the appropriate box to indicate whether each of the statements in the table below is True or False. The first one has been done for you.

STATEMENT	TRUE	FALSE
Example: Natural plastics come from plants, insects or animal horn.		✓
a. A design brief is a range of ideas sketched as possible solutions.		
b. Hardwood has a faster rate of growth than softwood.		
c. Polypropylene is a thermoplastic.		

**Question 3 (4 marks)**

**Figure 2** below shows an isometric view of a block. Apply tone shading to it using either a pencil or coloured pencil. Arrow L shows the direction of light.



### Question 4 (15 marks)

Figure 3 shows the isometric projection of a shaped block. In the space provided, draw its:

- i. Front view looking in the direction of arrow F.
- ii. Top view looking in the direction of arrow T.
- iii. Side view looking in the direction of arrow S.

Show all hidden details.

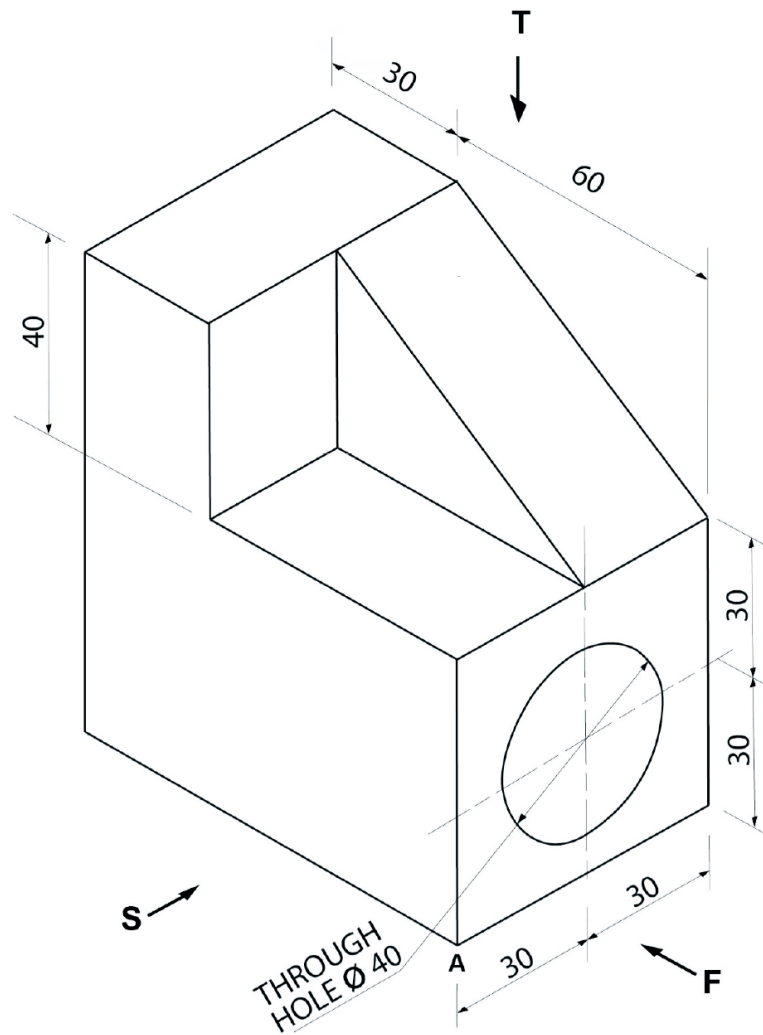
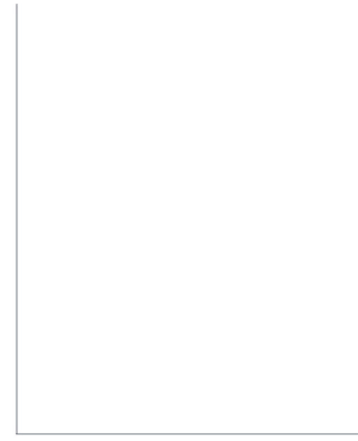


Figure 3



**A**

FRONT VIEW

SIDE VIEW

TOP VIEW



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## Extended Programme

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**DESIGN & TECHNOLOGY**

**Paper 4  
50 Minutes**

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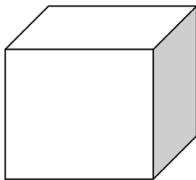
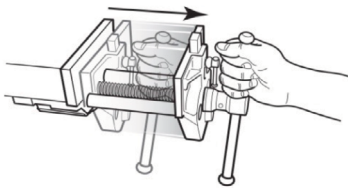
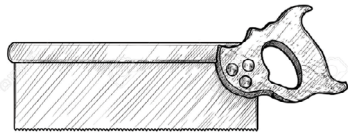
**Name of student :** .....



### Question 1 (4 marks)

Match the pictures in Column A to their corresponding descriptions in Column B. An example has been done for you.

#### Column A



#### Column B

Linkage mechanism

Oblique projection

Tenon saw

Bench vice

Try-square

Hand saw

## Question 2 (4 marks)

Fill in the blanks with the appropriate word from the list given below. The first one has been done for you.

(spanner, teak, plywood, block board, **mallet**)

*Example:* A **mallet** is used during the assembly of wooden parts.

- (1) ..... is a hardwood used to make first class furniture.
- (2) ..... is composed of a core of softwood strips sandwiched between veneers of hardwood.
- (3) A ..... is used to tighten and loosen bolts and nuts.

### Question 3 (2 marks)

Give an example of a:

(1) Softwood: ..... (1 mark)

(2) Non-ferrous metal: ..... (1 mark)

### Question 4 (15 marks)

Figure 1 shows the front, top and side views of a shaped block. In the space provided, draw the oblique projection of the block with corner D as the starting point.

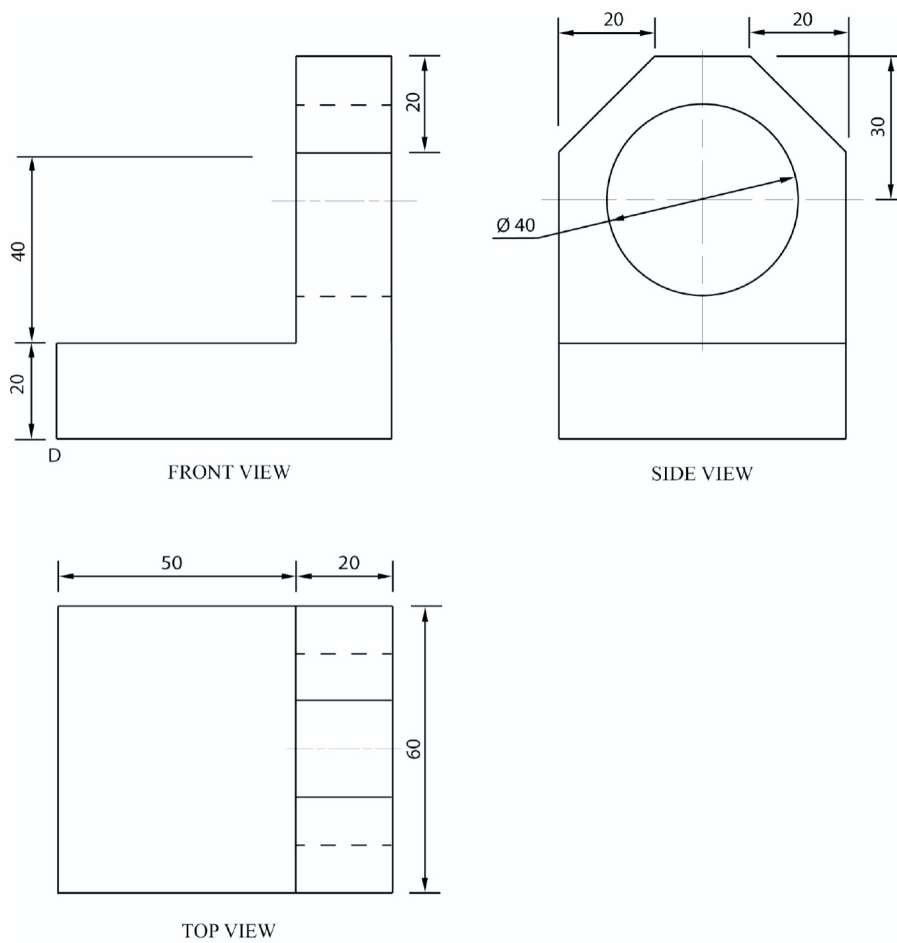


Figure 1





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## Extended Programme

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**DESIGN & TECHNOLOGY**

**Paper 5  
50 Minutes**

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- Read each question carefully.
- All answers must be written in the spaces provided.
- Answer all questions.
- The number of marks is given in the brackets [ ] at the end of each question or part question.
- The total mark for this paper is 25 marks.
- For Question 4:
  - All construction lines must be left on the drawing.
  - All dimensions are in millimetres.

**Name of student :** .....



### Question 1 (3 marks)

Circle the correct answer as shown in the example.

**Example:** Which one of the following materials is a type of hardwood?

- A Teak
- B Douglas fir
- C Red Cedar
- D Plywood

1. .... is a non-ferrous metal.

- A Red cedar
- B Tin
- C Cast iron
- D Mild steel

2. Figure 1 shows a ..... mechanism.



Figure 1

- A pulley
- B chain and sprocket
- C screw
- D cam

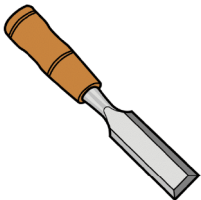
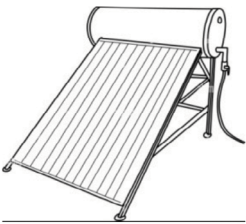
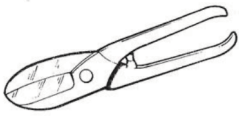
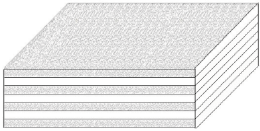
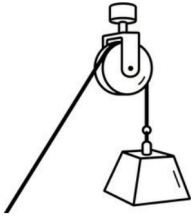
3. Which one of the following is a marking out tool?

- A Engineer's square
- B Mallet
- C Bench vice
- D Metal file

## Question 2 (4 marks)

Match the pictures in Column A to their corresponding descriptions in Column B.  
An example has been done for you.

### Column A



### Column B

Solar water heater

Chisel

Pulley


Snip

Screwdriver

Plywood

**Question 3 (3 marks)**

A garden bench is required to seat 2 children of age 10-12 years old. Sketch one idea of the garden bench in the space provided below.

A large, empty rectangular box with a thin black border, intended for a student to draw a sketch of a garden bench. The box occupies most of the lower half of the page.

### Question 4 (15 marks)

Figure 2 shows the front, top and side views of a shaped block. In the blank space to the right, draw the isometric projection of the block.

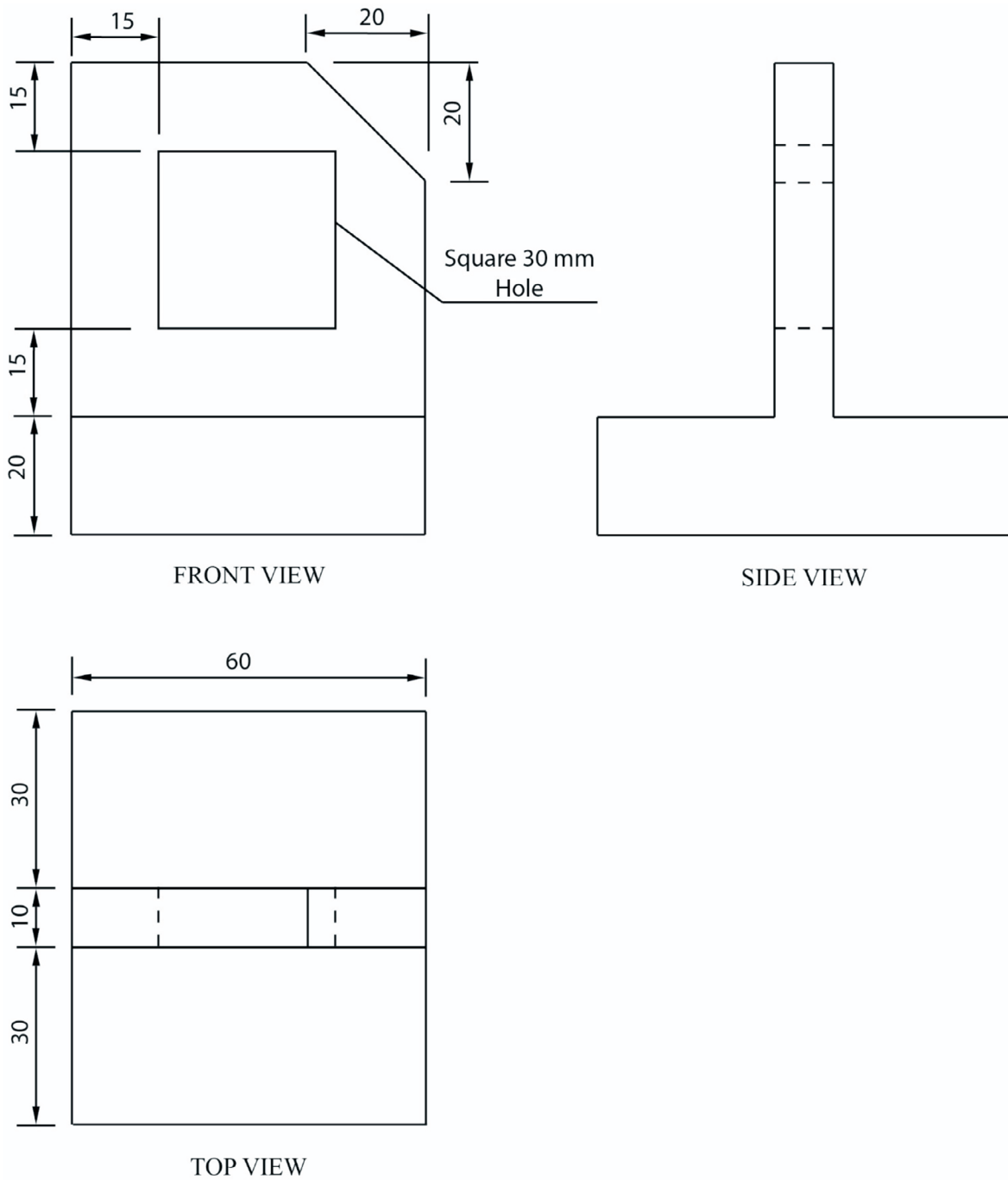


Figure 2





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## Extended Programme

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**DESIGN & TECHNOLOGY**

**Paper 6  
50 Minutes**

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**Name of student :** .....



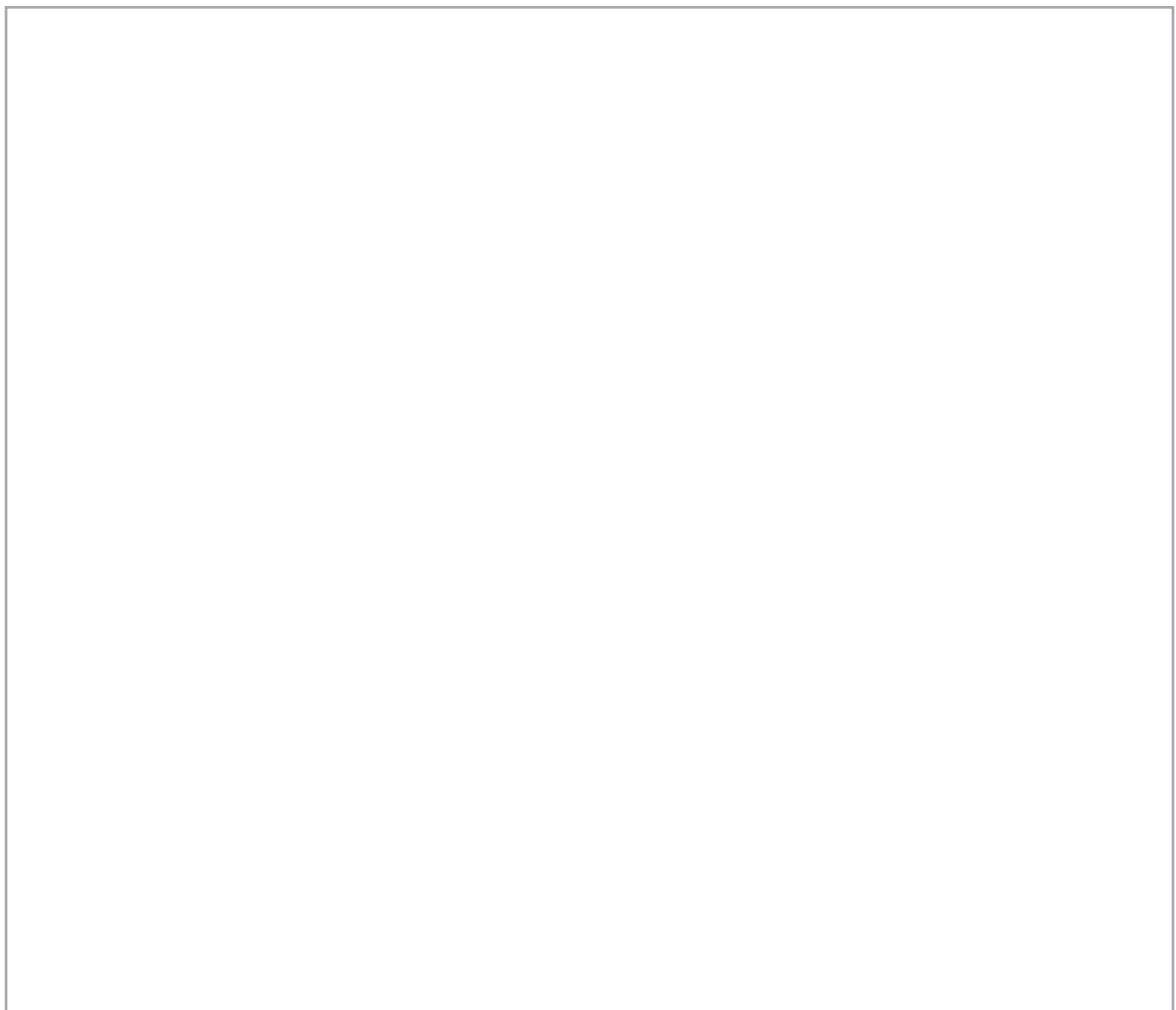
### Question 1 (3 marks)

Put a tick ( ✓ ) in the appropriate box to indicate whether each of the statements in the table below is True or False. The first one has been done for you.

STATEMENT	TRUE	FALSE
Example: Ferrous metals contain iron.	✓	
a. Thermosetting plastics can be heated and shaped several times.		
b. Plywood is made of a number of layers of veneers glued together.		
c. A hydraulic system uses compressed air to achieve mechanical motion.		

### Question 2 (3 marks)

Sketch a coping saw in the space provided.



**Question 3 (4 marks)**

**Figure 1** shows an isometric view of a block. Apply the thick and thin line technique to it in order to enhance its appearance.

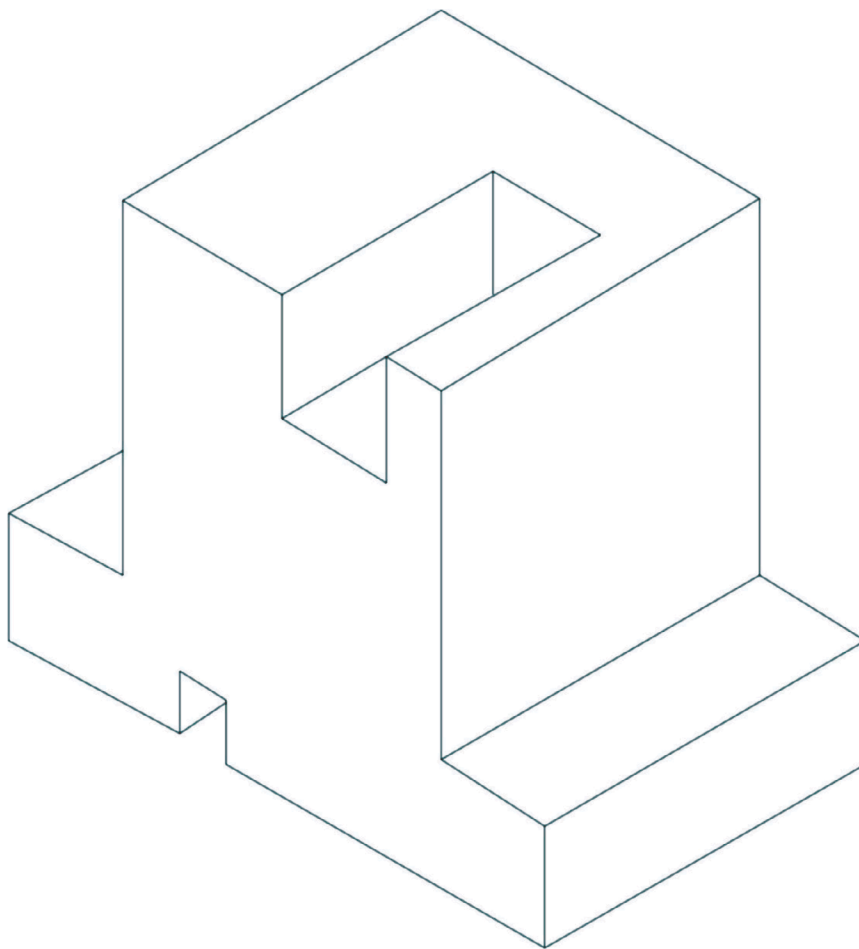


Figure 1

## Question 4

**Figure 2** shows the isometric projection of a shaped block.

- (a) In the space provided, draw:
- i. A front view looking in the direction of arrow F. **(4 marks)**
  - ii. A top view looking in the direction of arrow T. **(5 marks)**
  - iii. A side view looking in the direction of arrow S. **(4 marks)**

Show all hidden details.

- (b) Insert TWO major dimensions **(2 marks)**

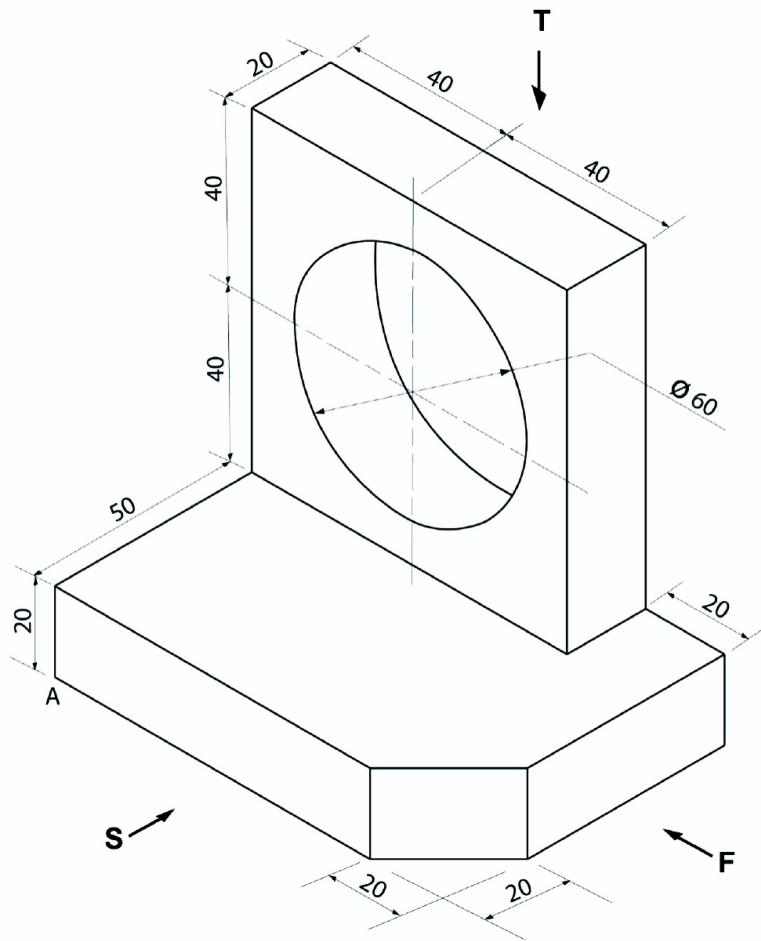


Figure 2

FRONT VIEW

A

SIDE VIEW

TOP VIEW

