Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Applied - 2004

Vocational Specialism - Graphics & Construction Studies (240 marks)

Tuesday, 15th. June 2004
Morning 9.30 am - 11.00 am.

For the Superintendent only

Centre Stamp

Marking Scheme

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)	
Note:	The mark in row 3 (or row 5 if an Irish Bonus is awarded) must equal the mark in the **Mór-Iomlán** 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 **both** questions. - 105 marks
   Q1 - Short answer questions
   Q2 - Graphic Communication

   Section 2 - Five questions, answer **any three**. - 135 marks
   Q1 - Construction
   Q2 - Building Services
   Q3 - Woodcraft
   Q4 - Design and Manufacture of Educational Toys
   Q5 - Computer Aided Design

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

Section 1 COMPULSORY
QUESTION 1 *(60 Marks)*

1. Answer <u>any TWELVE</u> of the following <u>FIFTEEN</u> short questions.

(a) Sketch, in the space provided, a project you completed during the course.

Any appropriate sketch = 4 marks

Use of pencil = 1 mark

(b) Describe **ONE** practical skill that you learned during the course of your practical work.

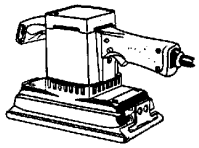
5 marks

(c) Give **TWO** safety precautions to be observed when working in the Construction room:

2.5 marks each

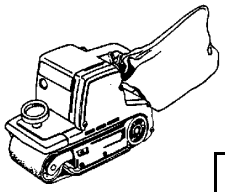
(d) Name the **TWO** types of electrical sanders shown.

1



2.5 marks each

2



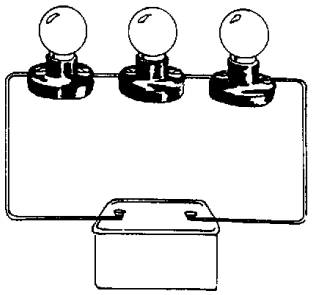
1 **Orbital sander**

2 **Belt sander**

(e) Name **FIVE** tools you used during this course.

1. _____
2. **1 mark each** _____
3. _____
4. _____
5. _____

(f) The diagram shows three bulbs wired in series. What would happen if one of the bulbs were removed?



Remaining two would not light. Circuit broken.

5 marks

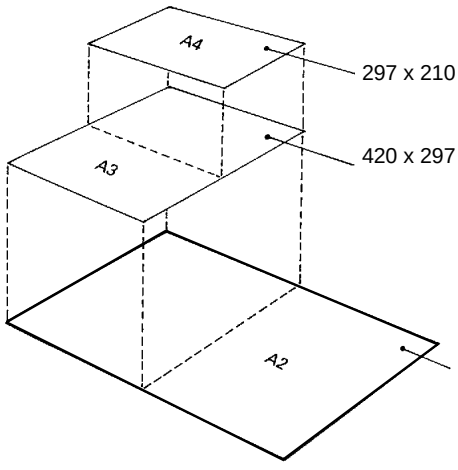
(g) Name **TWO** different types of manufactured board and briefly explain how **ONE** of the boards is manufactured.

Two names @ 1.5 marks each = 3 marks.

Explanation = 2 marks

(h) The diagram shows three standard paper sizes used in Graphics and Construction Studies. The A3 sheet size is double the A4 sheet size and the A2 sheet size is double the A3 sheet size.

Calculate the length and width of the A2 sheet.



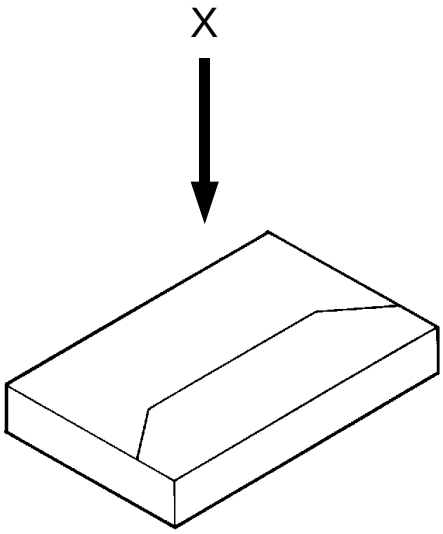
Size: **594 x 420** _____

5 marks

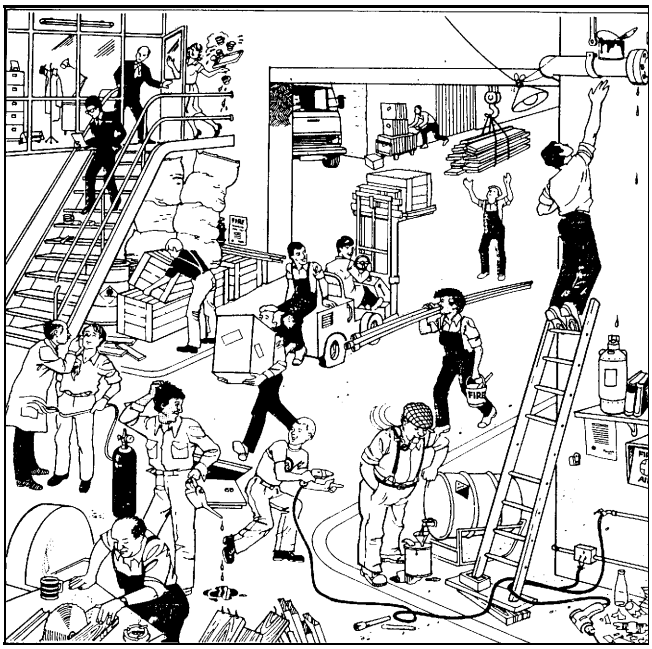
One dimension correct = 2.5 marks

(i) The diagram shows a pictorial view of a cassette case. Sketch the plan view of the case when viewed in the direction of the arrow X.

5 marks



(j) Identify any **FIVE** hazards and dangerous practices shown in the picture and explain how they should be corrected.



5 identifications @ 0.5 marks each = 2.5 marks

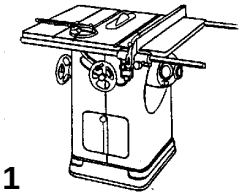
5 explanations @ 0.5 marks each = 2.5 marks

(k) Name any **TWO** of the woodwork machines shown.

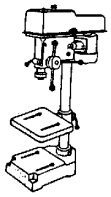
1. **Curcular saw / saw**
2. **Pillar drill / drill**
3. **Bandsaw**

2.5 marks each = 5 marks

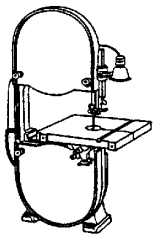
1



2



3



(l) A computer system with a number of peripherals is shown.
Name **THREE** input devices and **TWO** output devices.

Input devices:

1 mark each

Mouse

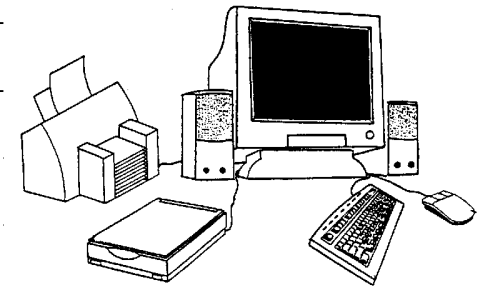
Keyboard

Scanner

Output devices:

Printer

Speakers

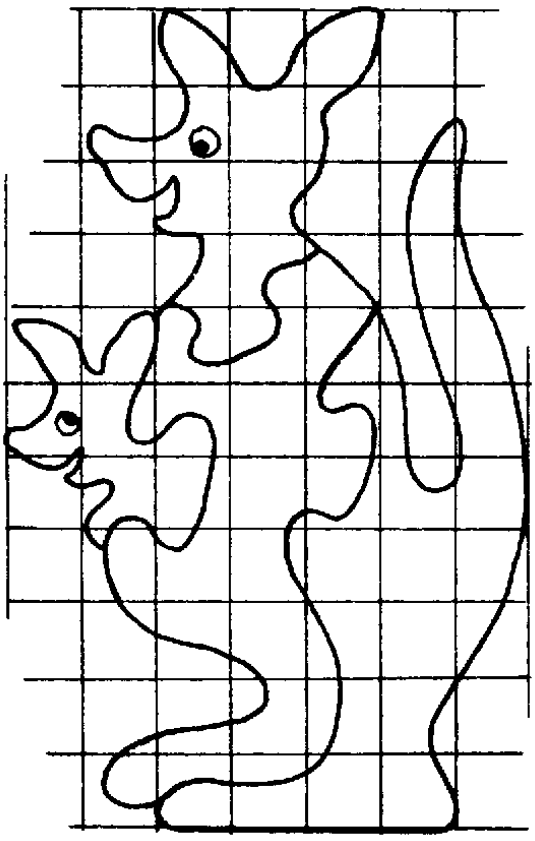


(m) The drawing shows a design for a kangaroo puzzle on a 25 mm square grid.

Calculate the size of board required to make this puzzle.

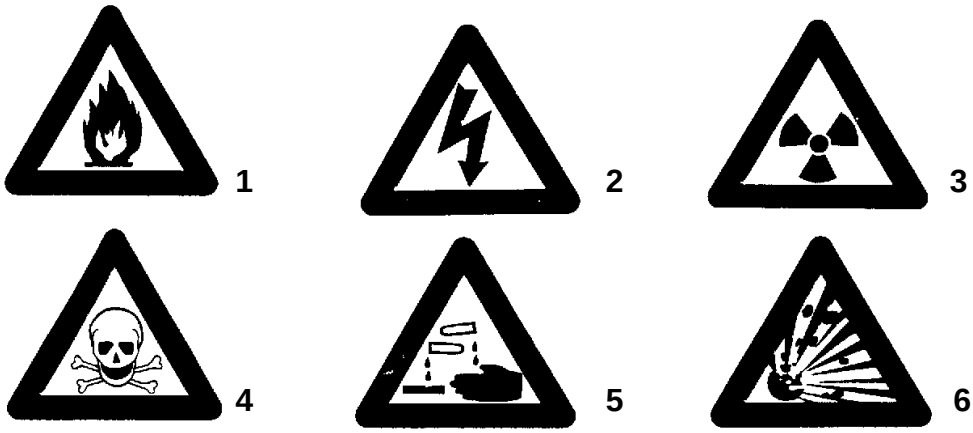
Answer: **275 x 175 mm**

5 marks



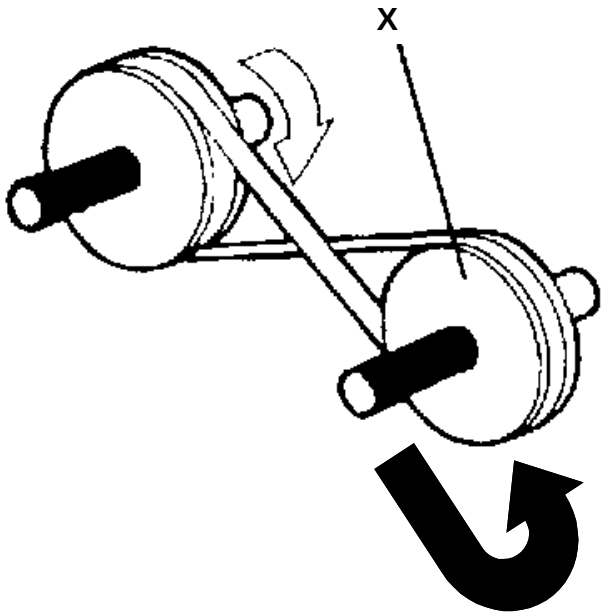
(n) Identify **ANY FIVE** of the warning signs shown below.

5 @ 1 mark each = 5 marks

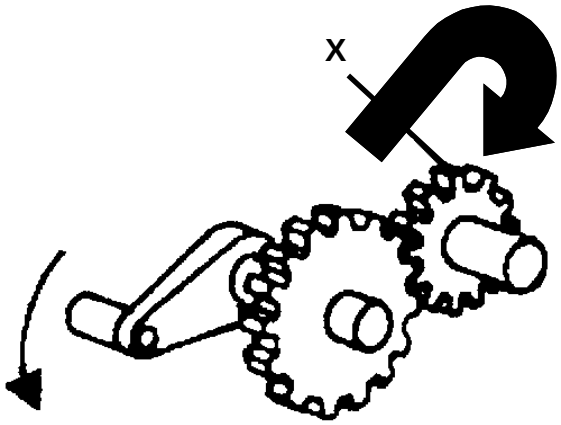


1. **Risk of Fire**
2. **Risk of Electric Shock**
3. **Risk of Radiation**
4. **Toxic hazard**
5. **Corrosive substance**
6. **Explosive substance or Explosive hazard room**

(o) Use an arrow to show the direction of rotation of wheel **X** in both drawings.



2 @ 2.5 marks each = 5 marks.

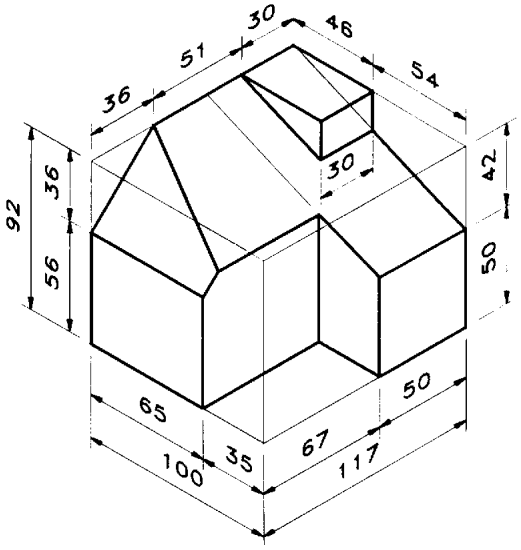


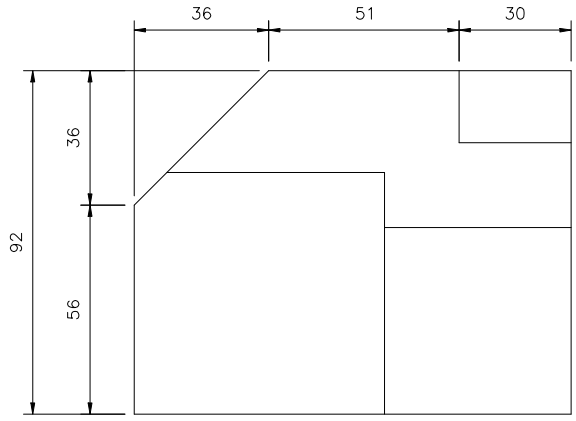
Section 1 COMPULSORY
QUESTION 2 *(45 Marks)*

2. Graphic Communication

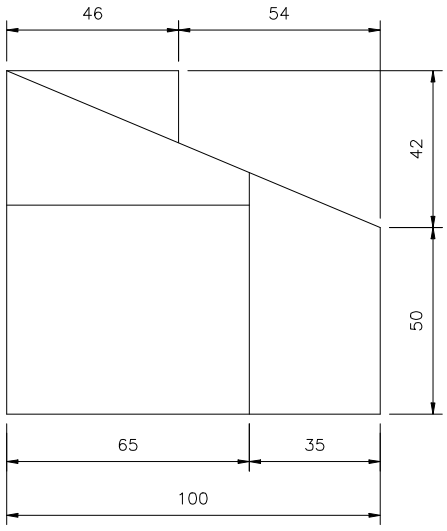
(a) A pictorial view of a building, with dimensions, is shown on the right.
The elevation, plan and end-view of the same building is shown below.

Dimension the elevation, plan and end-view, using the dimensions from the pictorial view.

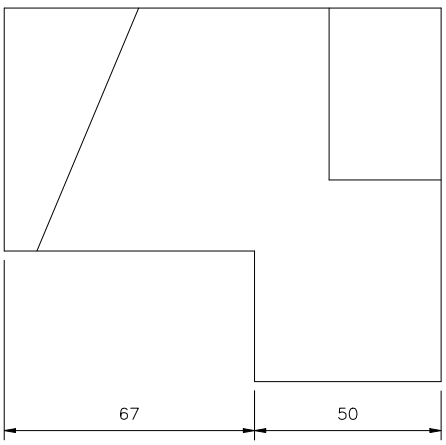




Elevation



End-View

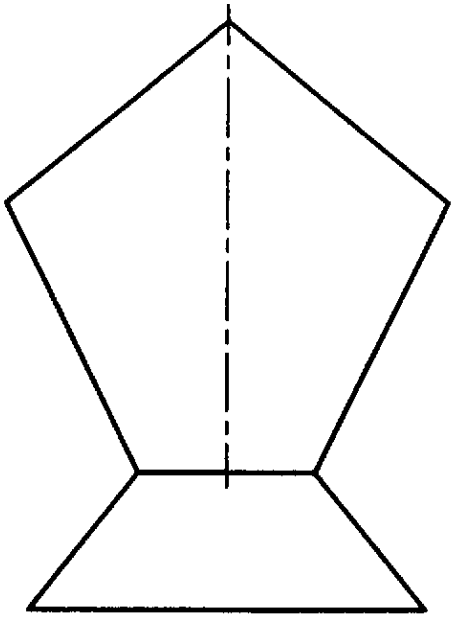


Plan

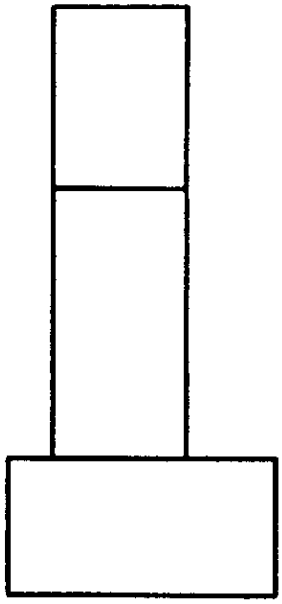
15 dimensions @ 1 mark each

(b) The front elevation and end elevation of a trophy are shown.
Also shown is the partly complete isometric view of the trophy.

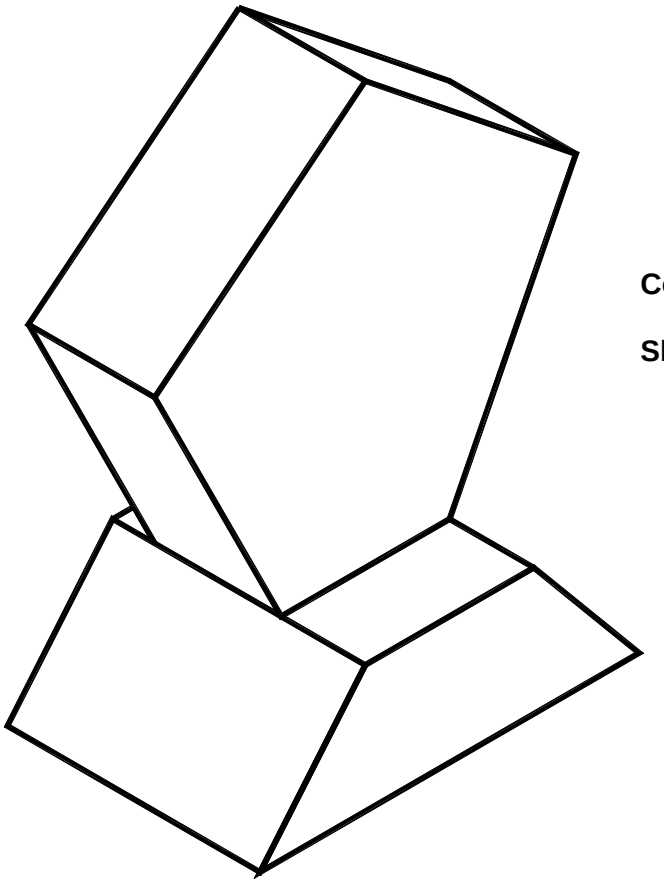
Complete the isometric view and apply appropriate shading to the isometric view.



Elevation



End Elevation



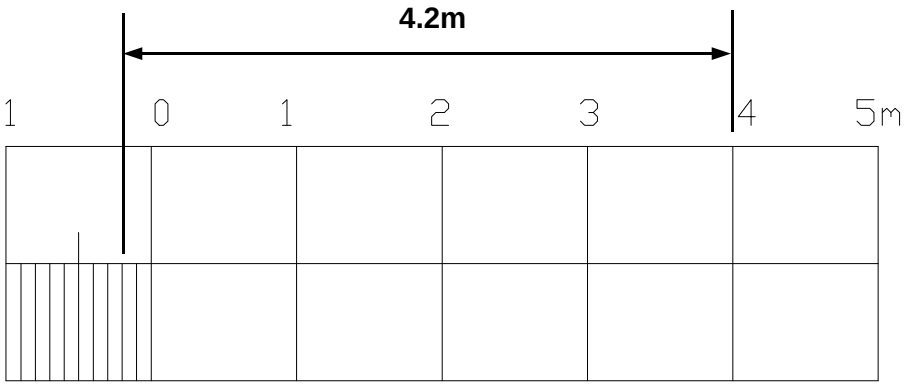
Isometric View

Completed view = 10 marks

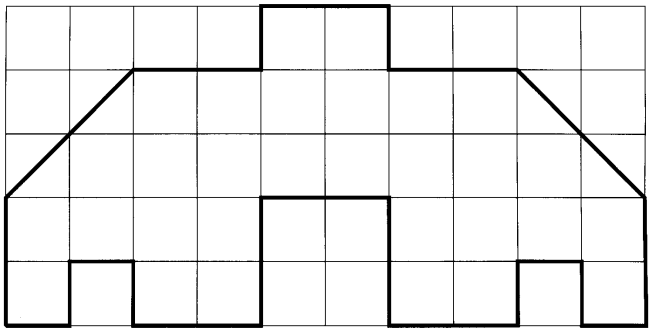
Shading = 5 marks

(c) (1) In the scale provided, show the following length: **4.2 m**

5 marks



(c) (2) Determine the area of the irregular figure in square units.
1 square = 1 x 1 units

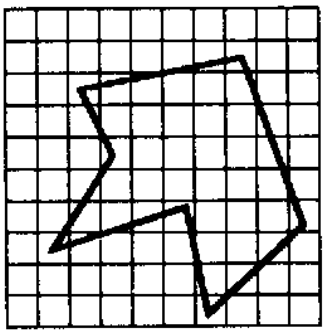


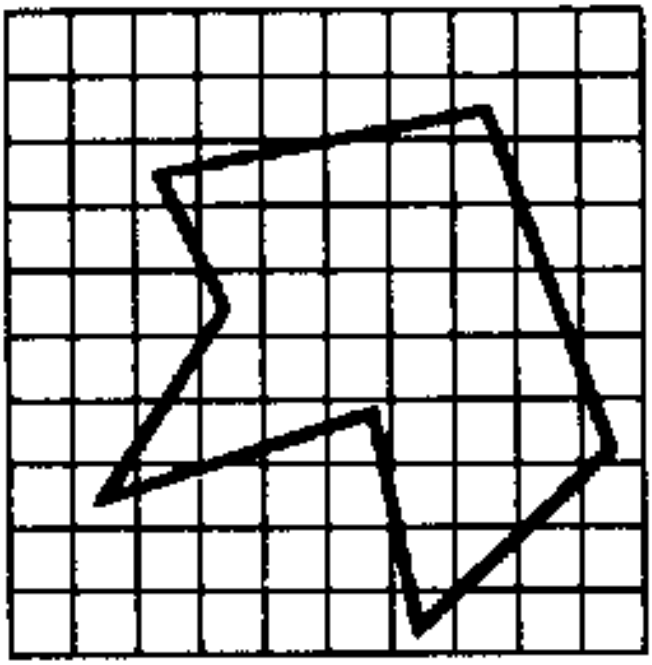
Answer: **32 units^2** _____

5 marks

(c) (3) The figure shown on the left is to be enlarged to twice its original size.
Draw the figure twice full size on the enlarged grid.

5 marks





USE A PENCIL ONLY

Section 2
(135 Marks)

1. Construction

(a) (1) Give **ONE** reason to explain why it is necessary to control planning permission.

One reason @ 6 marks

(a) (2) Name **THREE** types of planning permission.

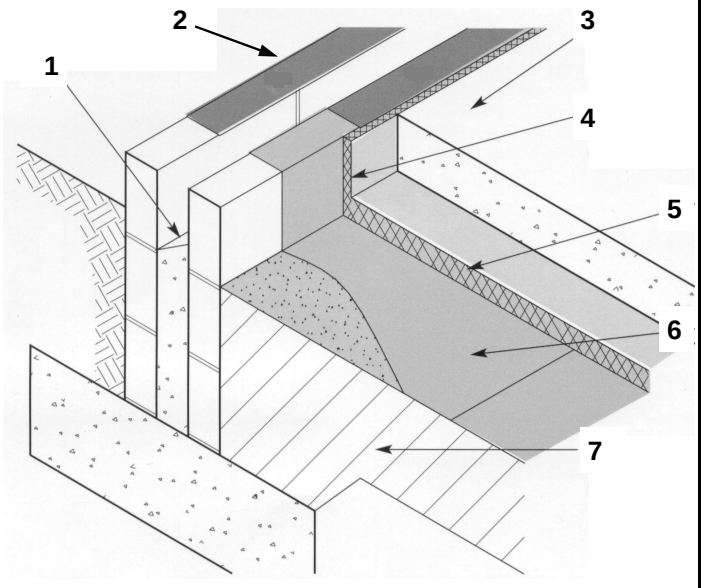
(i)

(ii) **Three types @ 3 marks each = 9 marks**

(iii)

(b) A typical concrete ground floor detail, including a cavity wall, is shown below.

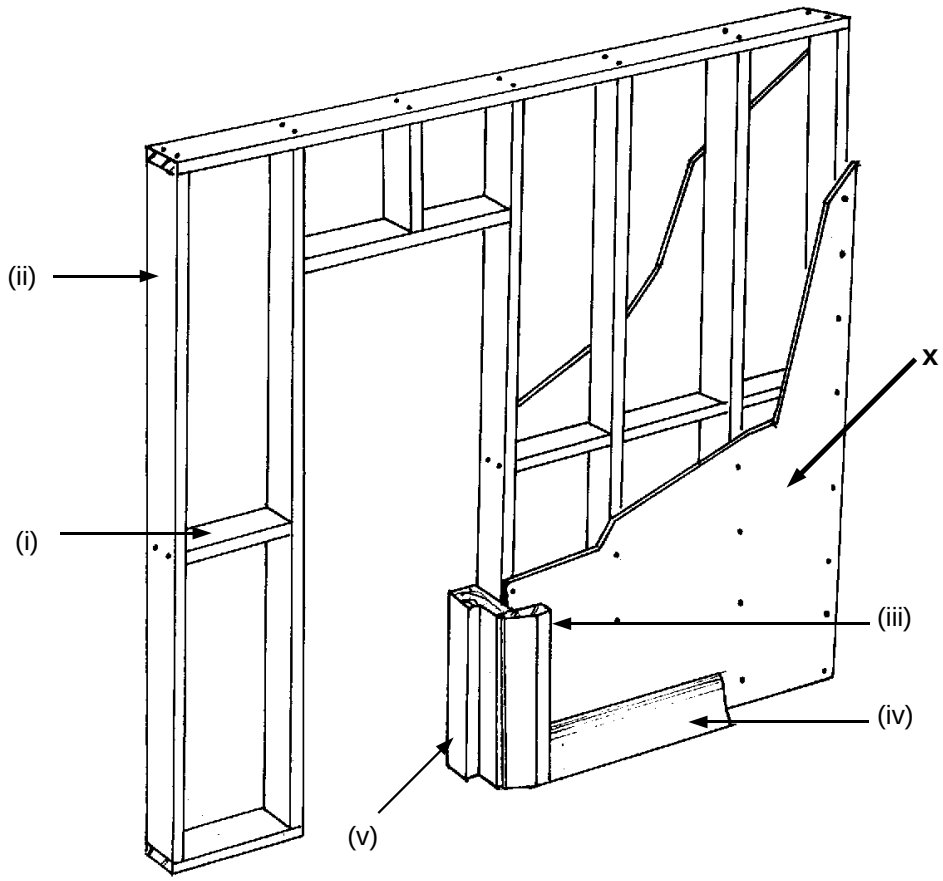
Name any **FIVE** of the parts shown.



1. **Lean concrete cavity fill**
2. **DPC**
3. **Concrete floor slab**
4. **Perimeter insulation**
5. **Underfloor insulation**
6. **DPM**
7. **Compacted hardcore**

Five parts identified @ 3 marks each = 15 marks

(c) The diagram shows a typical detail for a stud partition.



(c) (1) Name any **THREE** of the labelled parts.

(i) **Nogging** (ii) **End stud**

(iii) **Architrave** (iv) **Skirting**

(v) **Door frame**

Three parts @ 2 marks each = 6 marks

(c) (2) Name the type of board generally fixed to the stud at position **X**.

Plasterboard **3 marks**

(c) (3) List **ONE** advantage and **ONE** disadvantage of this board material.

Advantage: **Fire proof properties or any appropriate answer**

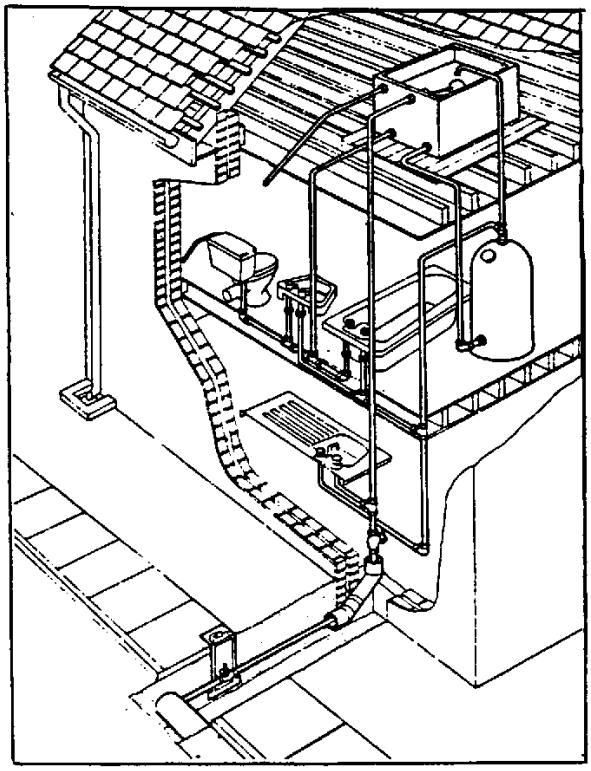
3 marks

Disadvantage: **Easily damaged during installation or any appropriate answer**

3 marks

2. Building Services

(a) The diagram shows the indirect hot and cold water system.



(a) (1) Explain, briefly, how the **indirect cold water system** works.

5 marks

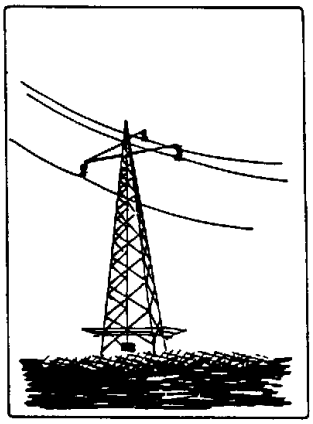
(a) (2) Give **TWO** advantages of the indirect cold water system.

Two advantages @ 3 marks each = 6 marks

(a) (3) Explain why the cold tap at the kitchen sink is directly connected to the mains.

4 marks

(b) (1) Name **THREE** energy sources used in the generation of electricity.



1. _____

Three sources @ 3 marks each = 9 marks

2. _____

3. _____

(b) (2) Give **ONE** reason to explain why overhead power lines are used to distribute electricity from generating stations.

_____

6 marks

_____

_____

(c) (1) Sketch a plug top in the space provided.
(2) Name the **THREE** terminals on your sketch.

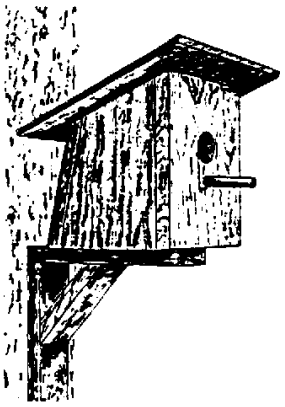
Appropriate sketch = 9 marks

Correct identification of three terminals = 6 marks

3. Woodcraft

(a) A sketch of a birdhouse is shown opposite.

(1) Outline **THREE** factors that should be considered when designing a birdhouse.



1. _____

2. **Three factors @ 2 marks each = 6 marks**

3. _____

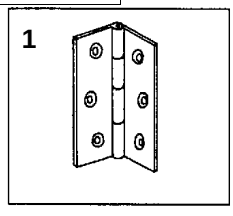
(a) (2) Sketch **ONE** change you would make to the design of the birdhouse.

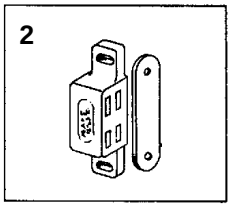
9 marks

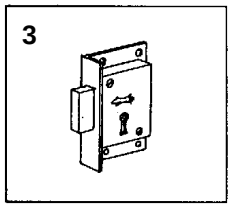
(b) Identify any **FIVE** of the following fittings.

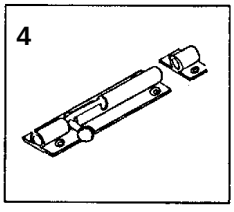
Any five @ 3 marks each = 15 marks

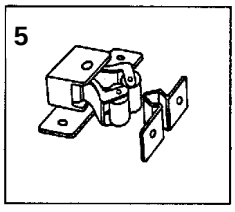
1. **Butt hinge**
2. **Magnetic catch**
3. **Drawer lock**
4. **Barrel bolt**
5. **Twin roller catch**
6. **Concealed cabinet hinge**

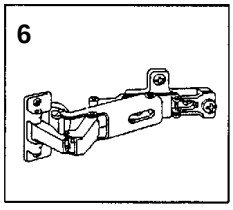




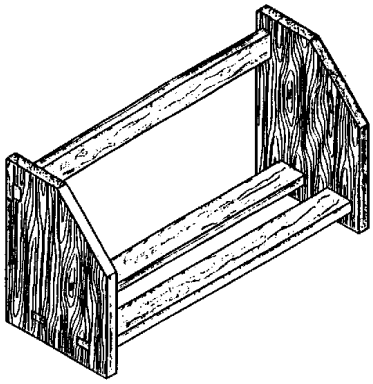








(c) The drawing shows a small book rack.



(c) (1) Suggest a suitable hardwood for this project.

3 marks

(c) (2) Suggest a suitable joint to join the rails to the sides.

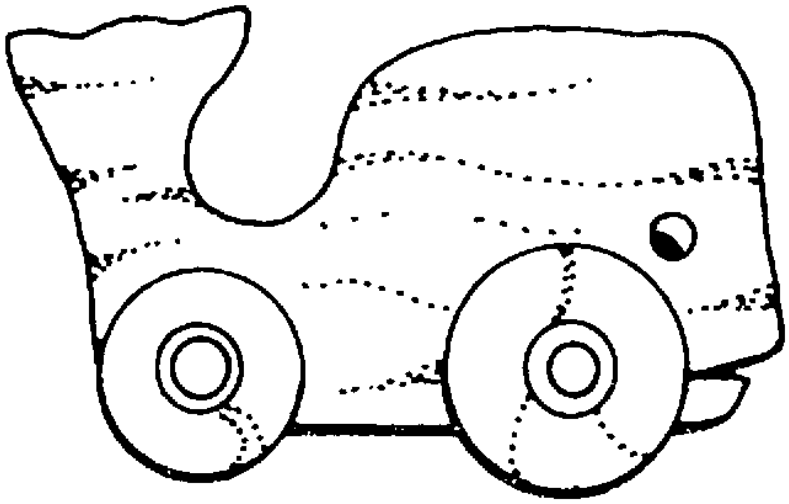
3 marks

(c) (3) Sketch, in the space provided, an alternative design for the sides of the book rack.

9 marks

4. Design and Manufacture of Educational Toys

(a) A pull-along toy, 'Willy the Whale', is shown. The toy has an interesting movement for a child in which the front moves up and down as the toy is pulled along.
Sketch, in the space below, a method you would use to make the toy move up and down.



15 marks

(b) (1) List **THREE** safety features that should be considered when buying a child's toy.

(i)

(ii) **Three safety features @ 3 marks each = 9 marks**

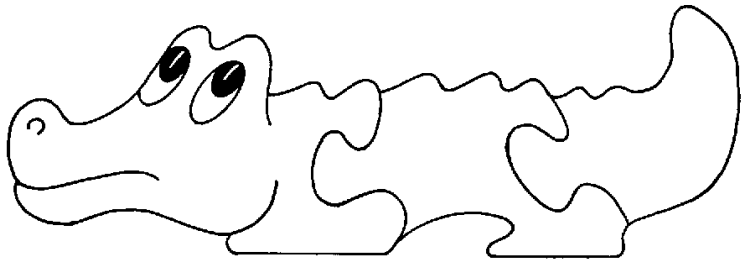
(iii)

(b) (2) Give **TWO** reasons why wood is a suitable material for toy making.

(i)

Two reasons @ 3 marks each = 6 marks

(c) A simple stand-up puzzle made from solid wood is shown.



(c) (1) Explain how you would transfer the puzzle pattern onto a piece of wood.

5 marks

(c) (2) Name an appropriate tool or machine that might be used to cut-out the puzzle.

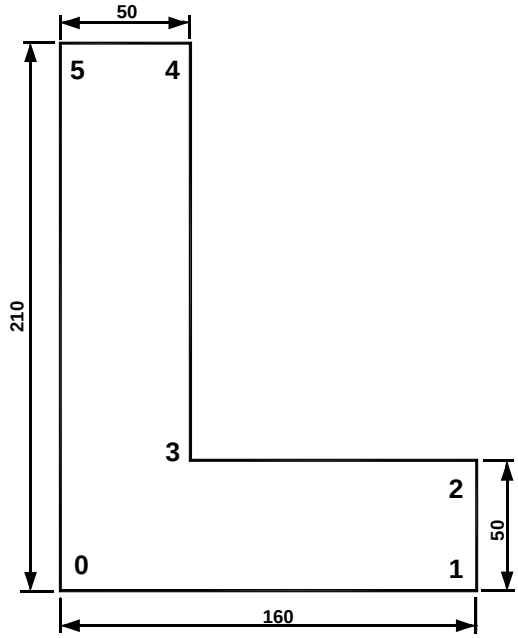
3 marks

(c) (3) Describe how you would finish this toy and make it safe for children.

7 marks

5. Computer Aided Design

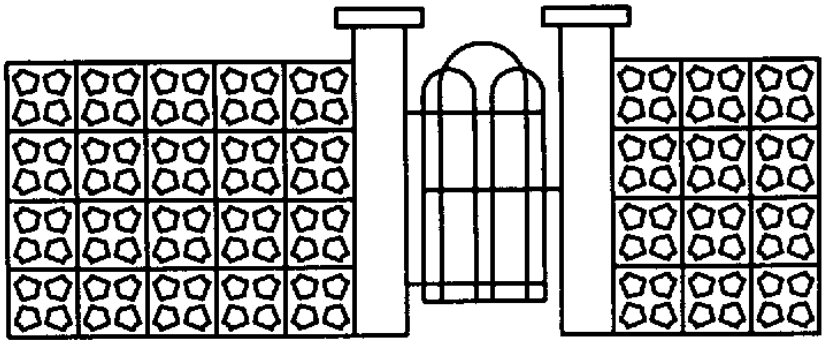
(a) The drawing shown was created using a CAD package.
List the relative co-ordinates for points 1—5.



1.	**@160,0**
2.	**@0,50**
3.	**@-110,0**
4.	**@0,160**
5.	**@-50,0**

5 @ 3 marks each = 15 marks

(b) A CAD design for a garden wall is shown below.
(1) Name **THREE** CAD commands required to draw the design shown.



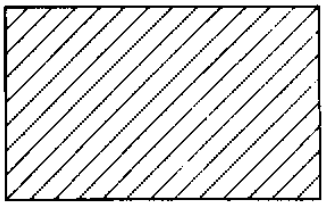
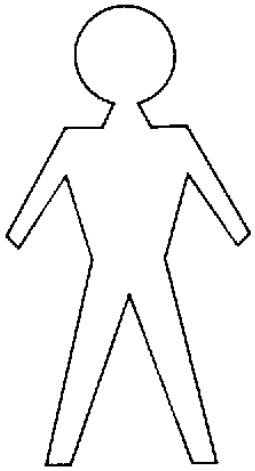
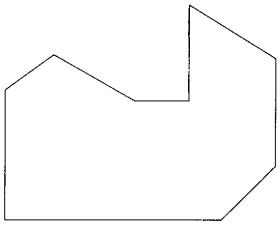
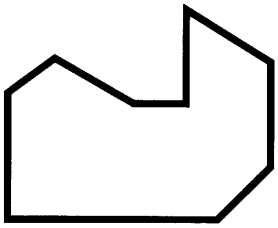
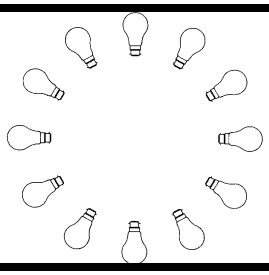
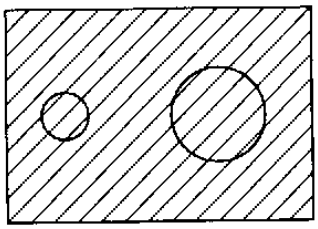
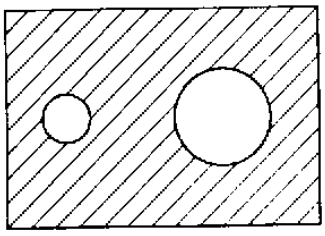
3 commands @ 3 marks each = 9 marks

(b) (2) Describe using CAD how you would create the wall design shown above.

6 marks

(c) Identify the CAD commands required to produce the modified drawing from the original drawing.

Five @ 3 marks each = 15 marks

ORIGINAL	MODIFIED	COMMAND
		**Hatch or pattern**
		**Mirror**
		**Polyline or Line thickness**
		**Array**
		**Trim**