



# Coimisiún na Scrúduithe Stáit State Examinations Commission

*Leaving Certificate Applied - 2005*

## Vocational Specialism - Graphics & Construction Studies (240 marks)

**Tuesday, 14<sup>th</sup> June 2005**  
**Morning 9.30 am - 11.00 am.**

*For the Superintendent only*

Centre Stamp
<b>MARKING SCHEME</b>

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 <b>Mór-Iomlán</b> 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 any TWELVE of the following FIFTEEN short questions.

(a) Describe the project that you completed for the end of year assessment.

---


5 marks

---

---

(b) Sketch, in the space provided, one cutting tool that you used during this course.

5 marks



**USE A  
PENCIL  
ONLY**



(c) State **TWO** safety precautions to be observed when using a pillar drill:

2.5 marks each

---

---

(d) Name the **TWO** types of power tools shown.

1		2	
2.5 marks each			
1 <b>Glue Gun</b>	2 <b>Jig Saw</b>		

(e) List **FIVE** sources of research you might use when designing a project .

1. \_\_\_\_\_
2. **1 mark each** \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

(f) What do the letters **CAD.** stand for?

**5 marks**  
**[-1.5 for incorrect word]**

- C **Computer** \_\_\_\_\_
- A **Aided** \_\_\_\_\_
- D **Drawing / Design** \_\_\_\_\_

(g) Name **TWO** materials used in house construction to conserve energy.

1. \_\_\_\_\_
2. **2.5 marks each** \_\_\_\_\_

(h) Sketch, in the space provided, a joint suitable for joining the front of a drawer to its sides, as shown in the sketch.



**5 marks**





(k) Name **TWO** safety procedures that should be observed when working on a building site.

1. **2.5 marks each**

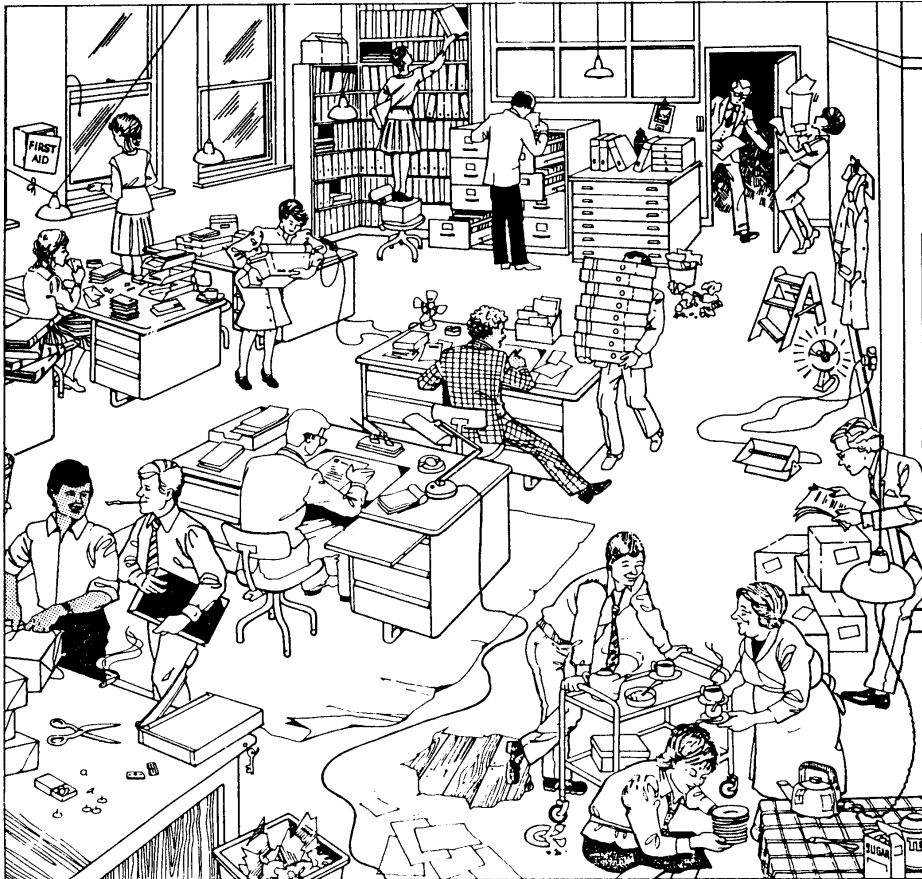
2. \_\_\_\_\_

(l) Motor car registration numbers and information about car owners can be stored in a computer file. Which **ONE** of the following programmes should be used to create this file?

1. Word Processor. 2. Database. 3. Spreadsheet.

**2 = 5 marks. 3 = 4 marks**

(m) Identify any **FIVE** hazards and dangerous practices shown in the picture.



(1) **1 mark each**

(2) \_\_\_\_\_

(3) \_\_\_\_\_

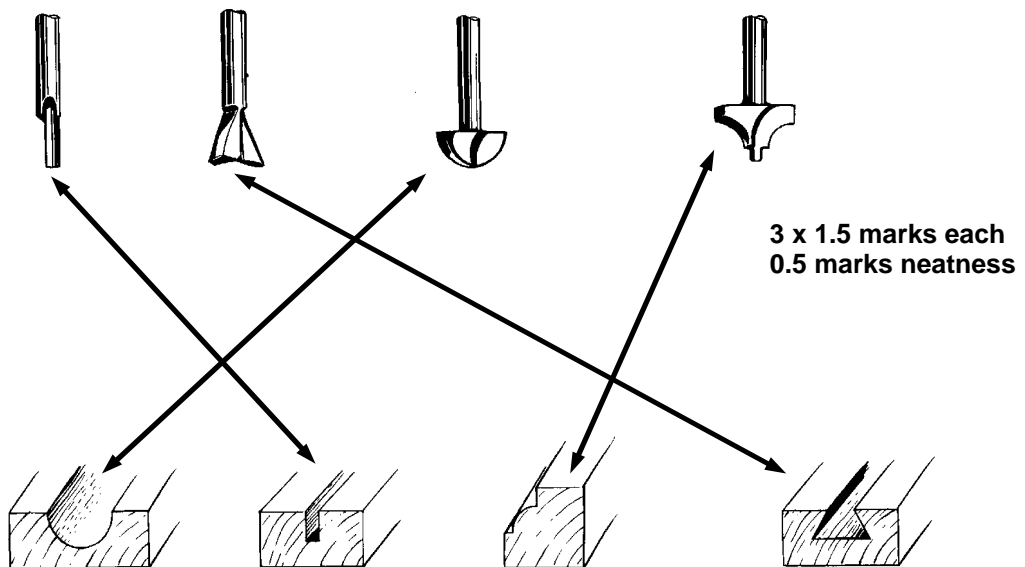
(4) \_\_\_\_\_

(5) \_\_\_\_\_

(n) Six stages of the design process are shown.  
 Arrange the six stages in the correct order.

- |    |                          |        |
|----|--------------------------|--------|
| 1. | Design Brief.            | 1 mark |
| 2. | Analysis of Brief        | 1 mark |
| 3. | Investigation            | 1 mark |
| 4. | Research & Investigation | 1 mark |
| 5. | Manufacture.             | 1 mark |
| 6. | Evaluation.              | 1 mark |

(o) Link the profiles with the correct router bit. The first bit is linked as an example.



# Section 1

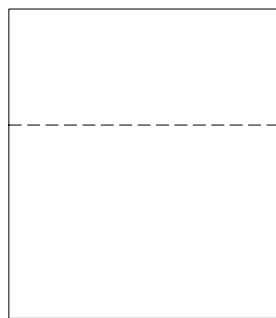
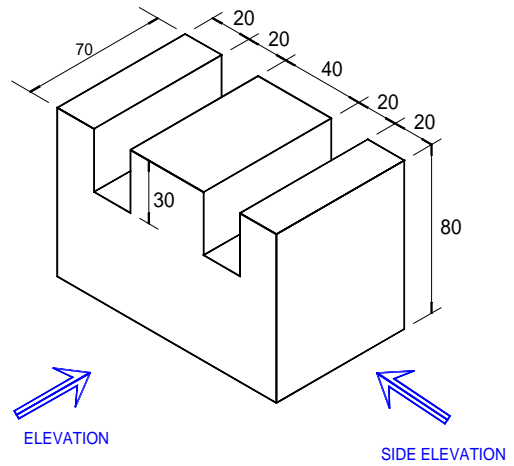
# COMPULSORY QUESTION 2

(45 Marks)

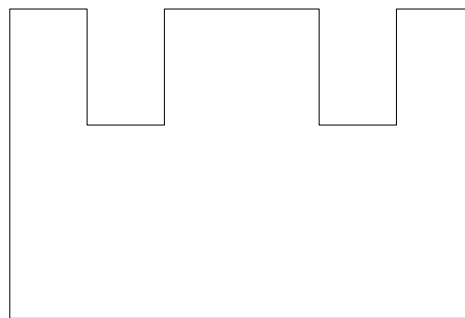
## 2. Graphic Communication

(a) The figure shows the outline of a shaped solid block

Draw, to a scale of 1:2 in the space provided, the elevation and side elevation in the direction indicated by the arrows.



Side Elevation



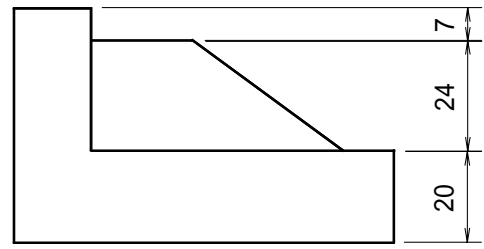
Elevation

13 lines @ 1 mark each = 13 marks  
Correct scale = 2 marks

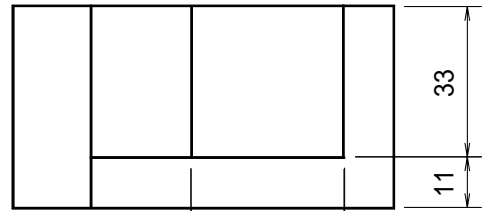
Total = 15 marks

(b) The front elevation and plan of a shaped solid are shown.

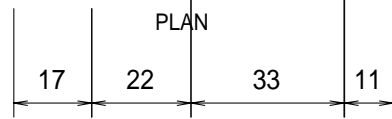
- (1) Sketch an isometric view of this solid.
- (2) Apply appropriate shading to the sketch.



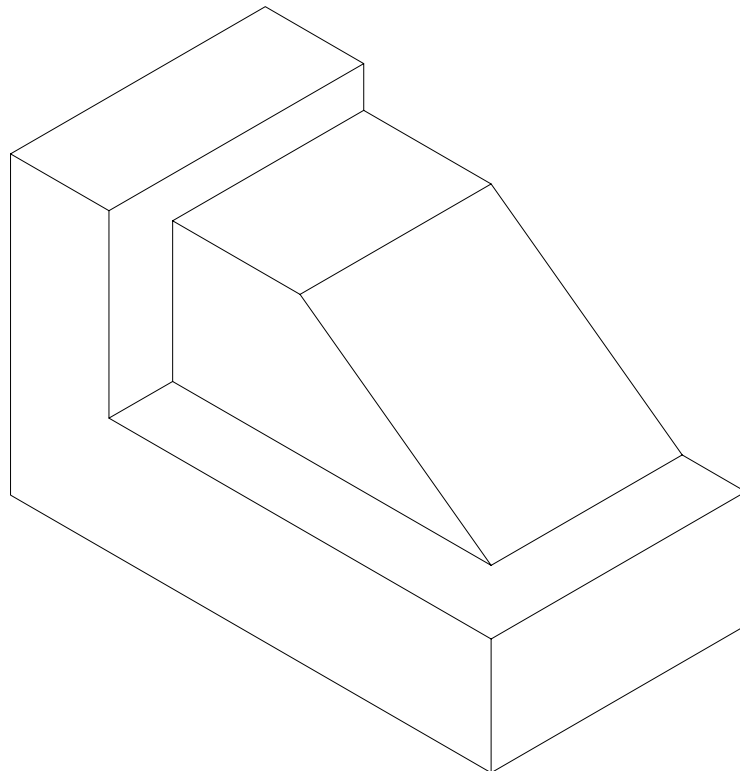
FRONT ELEVATION



PLAN

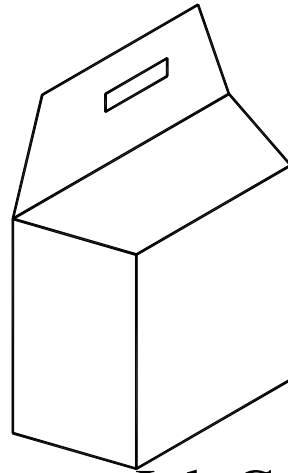
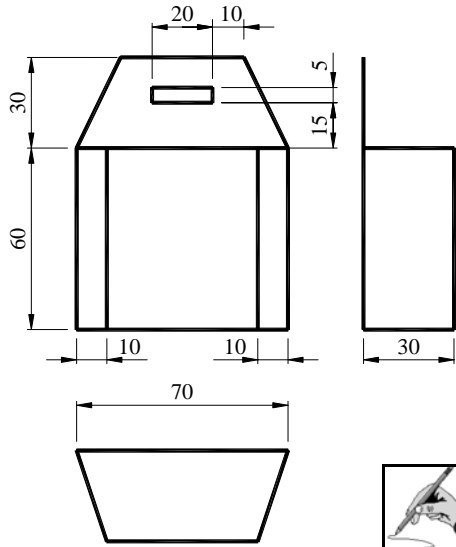


(1) = 10 marks  
(2) = 5 marks



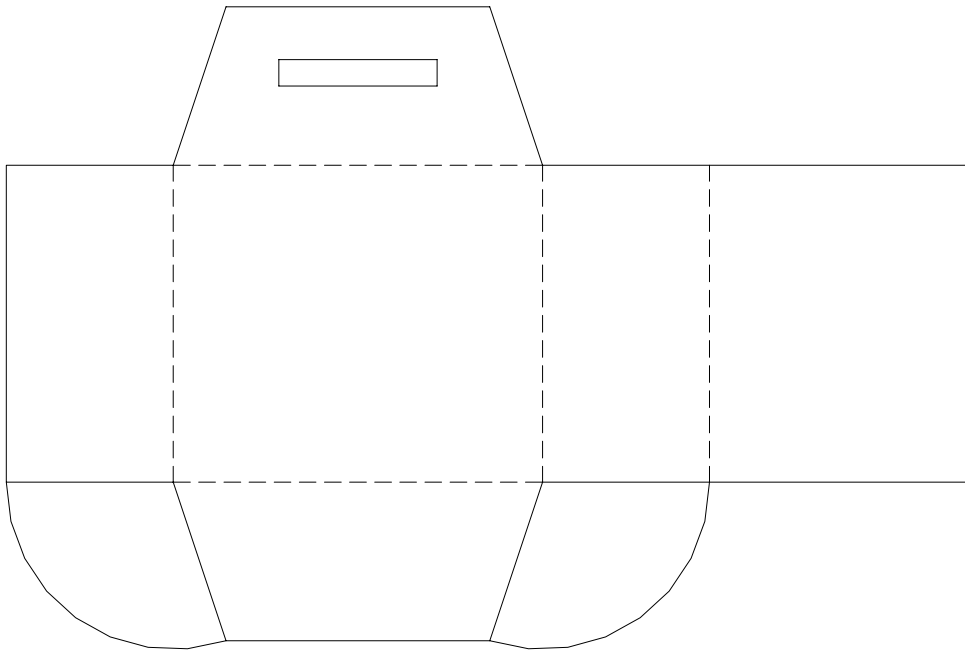


- (c) Orthographic and pictorial views of an ink cartridge box are shown. Sketch the surface development of this box.



**Ink Cartridge  
Box**

**15 marks**



## Section 2 (135 Marks)

### 1. Construction

(a) List **TWO** advantages and **TWO** disadvantages of concrete ground floors and suspended timber ground floors.

Concrete ground floors.  
 Advantages: 1. \_\_\_\_\_ **1.5 marks each = 12 marks**  
 2. \_\_\_\_\_ **3 marks = neatness / accuracy**

Disadvantages: 1. \_\_\_\_\_  
 2. \_\_\_\_\_

Suspended timber ground floors  
 Advantages: 1. \_\_\_\_\_  
 2. \_\_\_\_\_

Disadvantages: 1. \_\_\_\_\_  
 2. \_\_\_\_\_

(b) A typical section through a tiled roof is shown.  
 Name any **FIVE** of the labelled parts.

1. **Rafter** \_\_\_\_\_
2. **Tile** \_\_\_\_\_
3. **Gutter** \_\_\_\_\_
4. **Fascia** \_\_\_\_\_
5. **Soffit** \_\_\_\_\_
6. **Lintel** \_\_\_\_\_
7. **Internal plaster** \_\_\_\_\_
8. **Wallplate** \_\_\_\_\_
9. **Insulation** \_\_\_\_\_

**5 @ 3 marks each = 15 marks**

- (c) (1) Three safety signs associated with the work place are shown. Describe what each one of the signs means.



**3 @ 3 marks each = 9 marks**

---

---

---



---

---

---



---

---

---

- (c) (2) State **TWO** advantages of wearing Personal Protective Equipment

(a) **2 @ 2 marks each = 4 marks** \_\_\_\_\_

(b) \_\_\_\_\_

- (c) (3) In the case of an accident in the workplace, list **TWO** procedures that must be immediately followed.

\_\_\_\_\_

**2 @ 1 mark each = 2 marks**

---

---

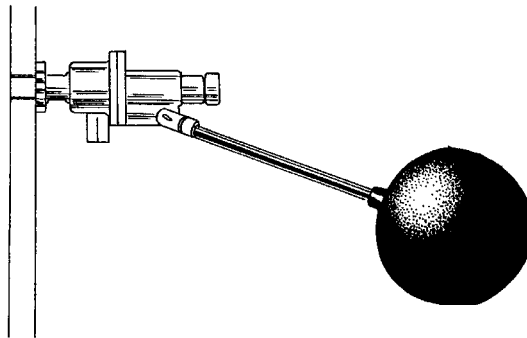
---

---

---

## 2. Building Services

(a) The diagram shows a common plumbing fitting.



(a) (1) Name the plumbing fitting shown.

**5 marks**

---

---

(a) (2) Explain, with the aid of notes and sketches, how this fitting works.

---

---

---

---

**Notes = 4 marks**

**Sketch = 6 marks**



(b) (1) List **THREE** ways to conserve electricity in the home.

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

**3 @ 2 marks each = 6 marks**

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

3. \_\_\_\_\_

(b) (2) The final reading on the last ESB bill was 13322 units and the present reading is 14150 units. The cost of electricity is 11 cent per unit. There is a standing charge of €11.76 and 13.5% V.A.T must also be added.

Calculate the total cost of the next ESB bill.

**14150 - 13322 = 828 units**

**= 3 marks**

**828 x 0.11c = €91.08**

**Standing charge = €11.76**

**Sub-total = 102.84**

**= 3 marks**

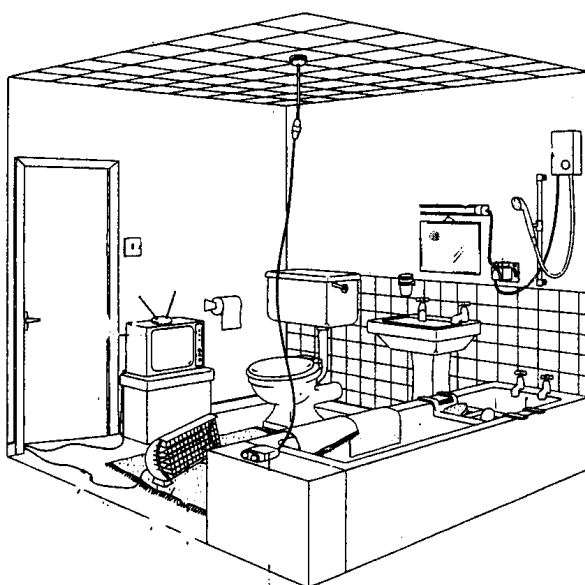
**VAT @ 13.5% = 13.88**

**Total = 116.72**

**= 3 marks**

**Total = 9 marks**

(c) The diagram shows a bathroom which is unsafe electrically. Circle **FIVE** hazards on the diagram and suggest how they should be corrected.



**5 @ 3 marks each = 15 marks**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

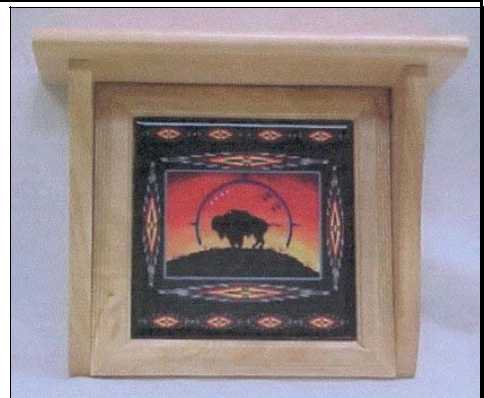
### 3. Woodcraft

- (a) A shelf unit and picture frame is shown .  
(a) (1) What type of material would you use for this project?

Ans: **3 marks**  
\_\_\_\_\_

- (a) (2) State **ONE** advantage of combining a shelf and a picture frame.

Ans: **3 marks**  
\_\_\_\_\_  
\_\_\_\_\_



- (a) (3) The following processes were used to make the above unit. Number the processes in the correct order.

- 5 Varnishing.       1 Marking out.       5 Glueing.  
 4 Sanding.       2 Sawing.       3 Drilling.

**6 @ 0.5 mark each = 3 marks**

- (a) (4) List the tools and equipment required for each of the above processes.

1. **6 @ 1 mark each = 6 marks** \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_  
4. \_\_\_\_\_  
5. \_\_\_\_\_  
6. \_\_\_\_\_

The diagram shows a wooden garden shed.

(b) (1) Suggest a suitable timber for this shed.

**3 marks**

---

(b) (2) Suggest a preservative that could be used on the shed and explain how it should be applied.

**6 marks**

---



---



---



(b) (3) Describe **ONE** safety precaution that should be observed when using preservatives.

**6 marks**

---



---

(c) A selection of tool names is presented in an incorrect order. Link up the words to form the correct tool name. Bench-hook is completed as an example.

A	B
Claw	Gauge
Bit and	Square
Sliding	Hook
Try	Plane
Mortise	Saw
Bench	Hammer
Jack	Brace
Sand	Bevel
Coping	Paper

Tool names:
Bench-hook

Any 7 @ 2 marks each = 14 marks, + 1 for neatness.

#### 4. Design and Manufacture of Educational Toys

(a) The picture shows an educational wooden toy.

(a) (1) Identify **THREE** educational features of this toy.

3 @ 2 marks each =  
6 marks



(a) (2) Outline the safety features of this toy in relation to: materials; finish; age of child.

3 @ 2 marks each = 6 marks

(a) (3) Suggest **ONE** change you would make to this design and give **ONE** reason for this change.

Change = 1 mark. Reason for change = 2 marks



- (b) A toy 'Merry-Go-Round' is shown.  
 (b) (1) Describe a mechanism that allows the toy to rotate.

**5 marks**

---



---



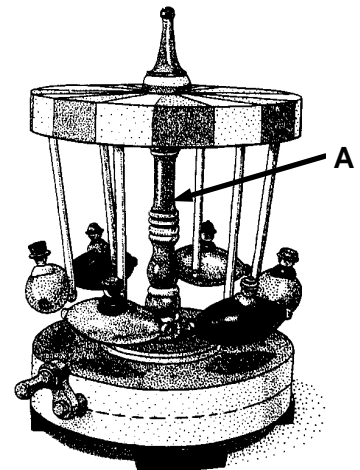
---



---



---



- (b) (2) Name a woodworking machine used to produce part A.  
 (i) Name this machine: **4 marks**

(ii) List **TWO** safety precautions that should be observed when using this machine:

(1) **2 @ 3 marks each = 6 marks**

(2)

- (c) A child's educational puzzle is shown.

- (c) (1) Identify **THREE** educational features of this puzzle.

**3 @ 2 marks each = 6 marks**

---



---



- (c) (2) For what age group is this puzzle suitable? **3 marks**

- (c) (3) Describe how you would make this puzzle.

**6 marks**

---



---



---



---



---

## 5. Computer Aided Design

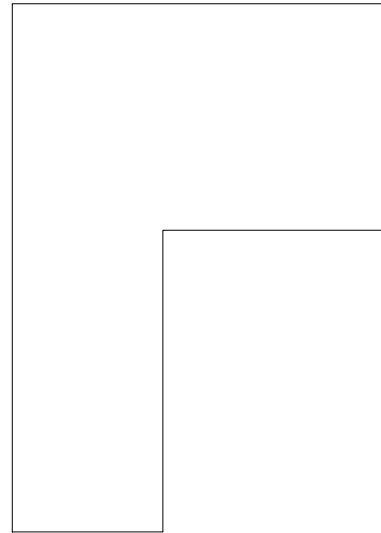
- (a) The following relative co-ordinates are used to draw a shape using a CAD package.  
Draw the shape using the given co-ordinates starting from point 1.



15 marks

From point 1  
To point: @0,70  
To point: @50,0  
To point: @0,-30  
To point: @-30,0  
To point: @0,-40  
To point: -20,0

Point 1



- (b) A number of computer peripherals suitable for use with CAD are shown.  
Name any **THREE** peripherals and state a use for each.



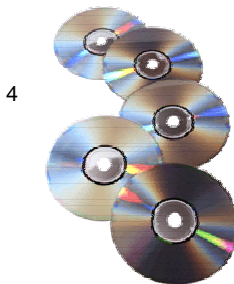
1



2



3



4



5

Name = 3 @ 3 marks each = 9 marks

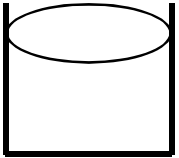
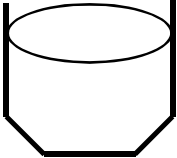
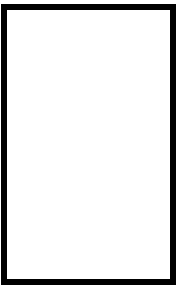
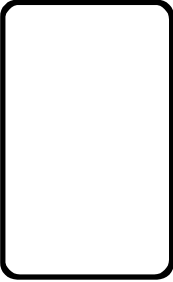

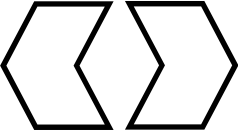

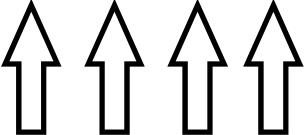
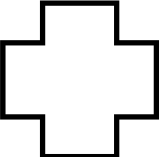
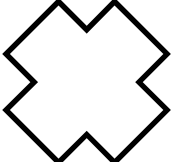
Use = 3 @ 2 marks each = 6 marks

---

---

---

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

ORIGINAL	MODIFIED	CAD COMMAND
		<p><b>Chamfer [ 3 marks]</b></p>
		<p><b>Fillet [ 3 marks]</b></p>
		<p><b>Mirror [ 3 marks]</b></p>
		<p><b>Copy / Array [ 3 marks]</b></p>
		<p><b>Rotate [ 3 marks]</b></p>