



**Coimisiún na Scrúduithe Stáit  
State Examinations Commission**

S68

**Junior Certificate Examination, 2005**

**TECHNOLOGY**

**ORDINARY LEVEL**

**160 Marks**

**Wednesday 22 June, Afternoon, 2.00 to 4.00**

Centre Number

Examination Number

**INSTRUCTIONS**

1. Answer Section A and any two questions from Section B.
2. Write your answers in the spaces provided or tick the appropriate box.
3. Hand up this paper at the end of the examination.

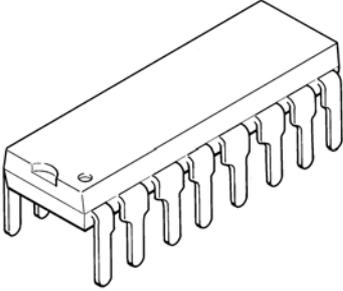
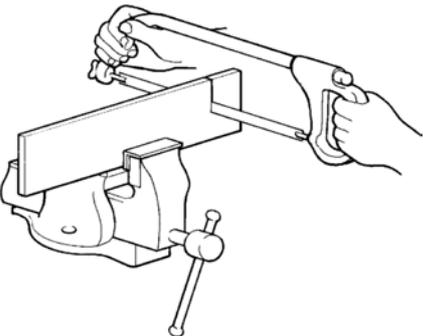
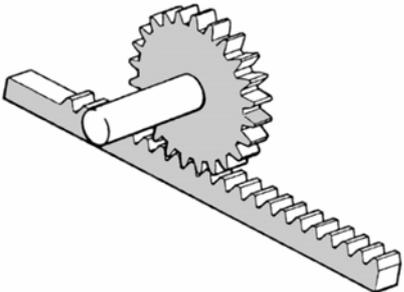
1.	Total of end of page totals	
2.	Aggregate total of all disallowed question(s)	
3.	Total mark awarded (1 minus 2)	
4.	Bonus mark for answering through Irish (if applicable)	
5.	Total mark awarded if Irish Bonus (3+4)	
	<b>Note:</b> The mark in row 3 (or row 5 if an Irish bonus is awarded) must equal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

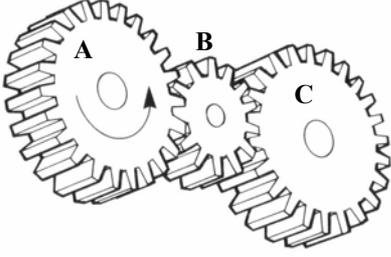
For Examiner	
Total Mark	<input type="text"/>
Question	Mark
Section A	
Section B Q1	
Section B Q2	
Section B Q3	
Section B Q4	
Total	
Grade	

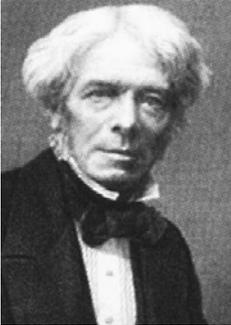
**MAKE SURE TO WRITE YOUR EXAMINATION NUMBER IN THE BOX PROVIDED ON THIS PAGE**

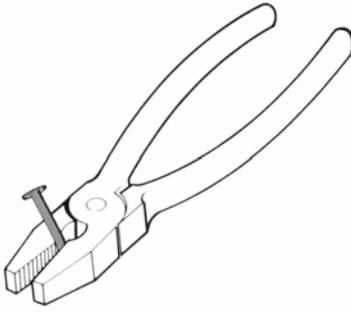
**SECTION A – 80 MARKS**

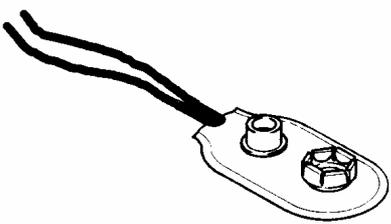
**ANSWER ANY SIXTEEN QUESTIONS IN THIS SECTION**

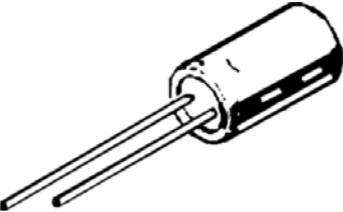
<p>1.</p> 	<p>The microchip is shown in:</p>	<p>Orthographic</p>	
		<p>Isometric</p>	
		<p>Oblique</p>	
<p>2.</p> 	<p>The fabric surface of the umbrella is in:</p>	<p>Compression</p>	
		<p>Shear</p>	
		<p>Tension</p>	
<p>3.</p> 	<p>Coal is a:</p>	<p>Renewable fuel</p>	
		<p>Fossil fuel</p>	
		<p>Nuclear fuel</p>	
<p>4.</p> 	<p>This cutting tool is a:</p>	<p>Tenon saw</p>	
		<p>Hacksaw</p>	
		<p>Junior hacksaw</p>	
<p>5.</p> 	<p>This mechanism is a:</p>	<p>Rack and pinion</p>	
		<p>Gear train</p>	
		<p>Pulley drive</p>	

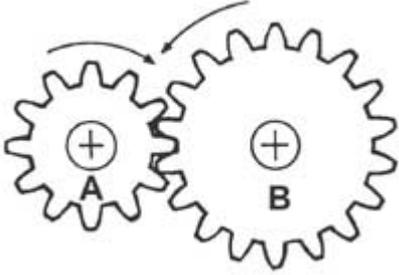
6.		The idler gear is labelled:	
		A	
		B	
C			

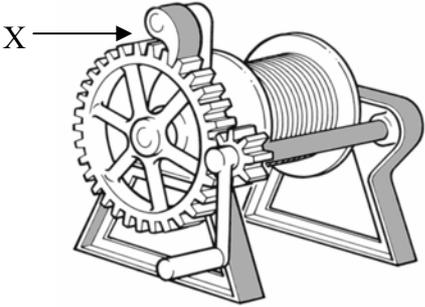
7.		Michael Faraday built the first:	
		Car	
		Motorcycle	
Electric motor			

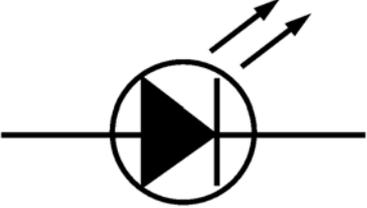
8.		The nail in the jaws of the pliers is:	
		The effort	
		The load	
The fulcrum			

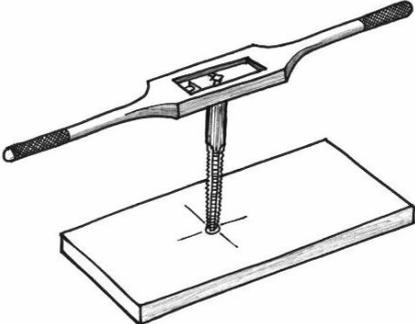
9.		This component is a:	
		Water level sensor	
		Battery tester	
Battery snap			

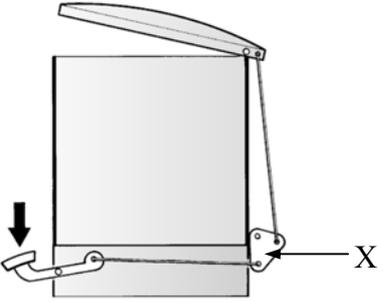
10.		This electronic component is:	
		Capacitor	
		Diode	
Thermistor			

11.  A=12 Teeth, B=18 Teeth	If B rotates at 100 RPM, A rotates at:	100 RPM	
		150 RPM	
		200 RPM	

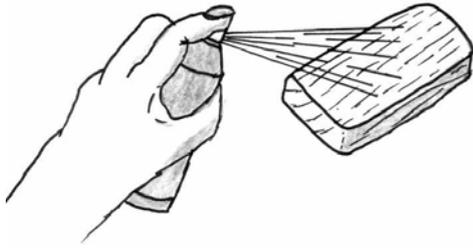
12. 	Mechanism X is a:	Sprocket	
		Slider	
		Pawl	

13. 	This electronic symbol represents a:	Light Emitting Diode	
		Light Dependent Resistor	
		Battery	

14. 	This cutting tool is a:	Drill	
		Die	
		Tap	

15. 	Part 'X' is a:	Caliper	
		Bell Crank	
		Parallel Linkage	

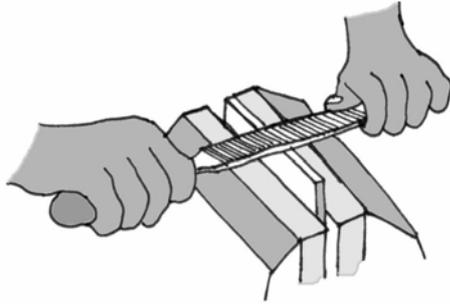
16.



What safety precautions should be taken when using aerosol spray paints?

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

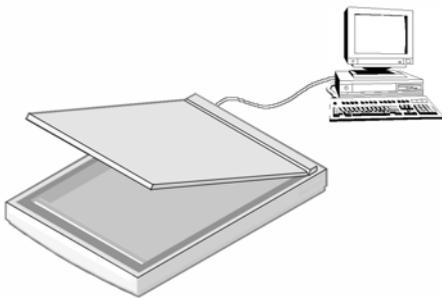
17.



Name **two** materials that can be filed to improve their finish.

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

18



Name this computer input device and state **one** of its uses.

Name: \_\_\_\_\_

Use: \_\_\_\_\_

\_\_\_\_\_

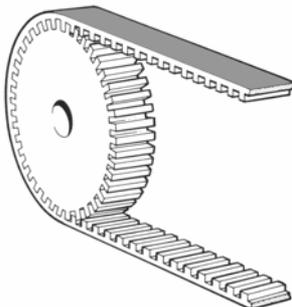
19.



Describe **one** advantage of using Computer Aided Drawing (CAD) to produce a drawing of a house as shown.

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

20.



State **one** reason for using a toothed belt.

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**SECTION B – 80 MARKS**  
**ANSWER ANY TWO QUESTIONS FROM THIS SECTION**

40 Marks

1.

**(a)** This drawing shows the components of a toy commonly known as a “Jitterbug”.  
 A motor with an off-centred cam is to be attached to the underside of the toy.  
 When switched on the motor causes the toy to vibrate and move.

14 Marks

(i) Suggest a suitable material for the disc and give a reason for your choice.

Material: \_\_\_\_\_

Reason: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(ii) List **two** reasons for using the rubber feet.

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

\_\_\_\_\_

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

\_\_\_\_\_

(iii) List **two** tools that should be used to mark out the disc.

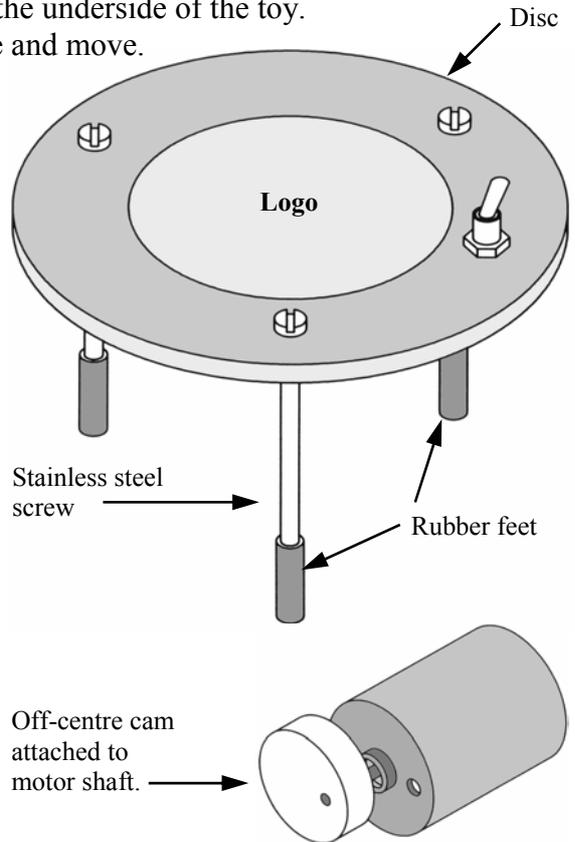
1: \_\_\_\_\_

2: \_\_\_\_\_

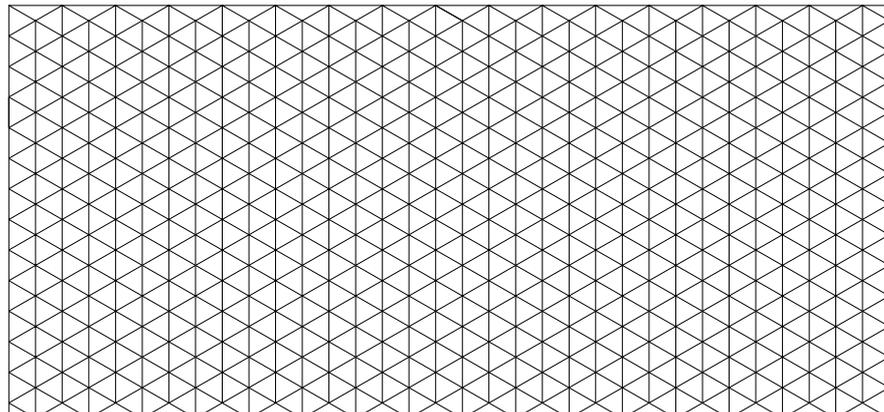
(iv) Suggest **two** safety precautions that should be used when drilling the disc.

1: \_\_\_\_\_

2: \_\_\_\_\_



**(b)** Sketch a suitable bracket to securely attach the motor to the Jitterbug toy.

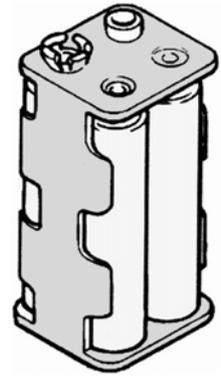


6 Marks

(c) A battery consisting of 4 AA cells is used to power the Jitterbug.

8 Marks

- (i) What is the voltage of one AA cell? \_\_\_\_\_
- (ii) What is the battery voltage when the cells are connected in series? \_\_\_\_\_
- (iii) Name another method used to connect cells. \_\_\_\_\_
- (iv) What is the unit of current? \_\_\_\_\_
- (v) What instrument is used to measure current? \_\_\_\_\_



4 x AA cell battery holder

(d) A logo is to be attached to the Jitterbug.

6 Marks

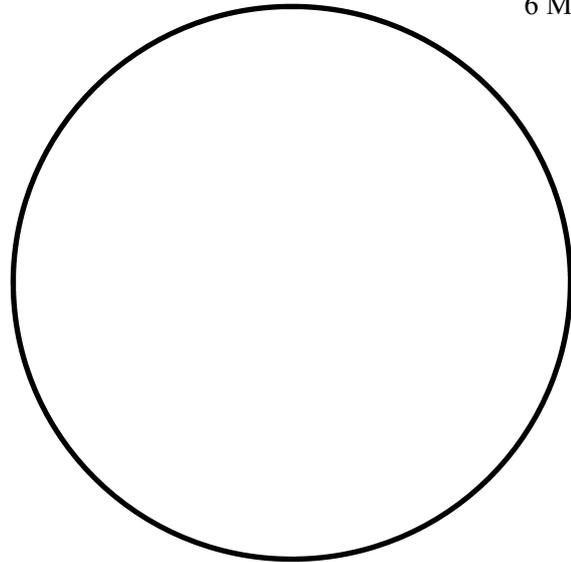
- (i) In the circle shown draw a logo suitable for this toy.
- (ii) What is the purpose of a logo?

\_\_\_\_\_

\_\_\_\_\_

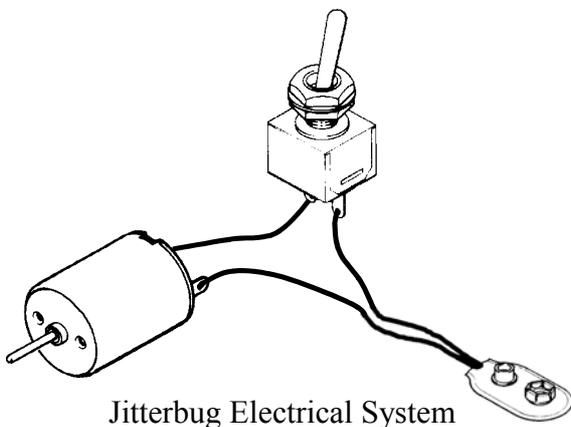
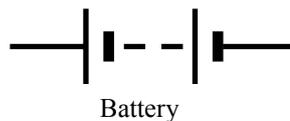
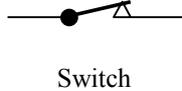
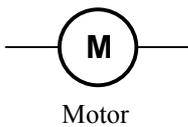
\_\_\_\_\_

\_\_\_\_\_

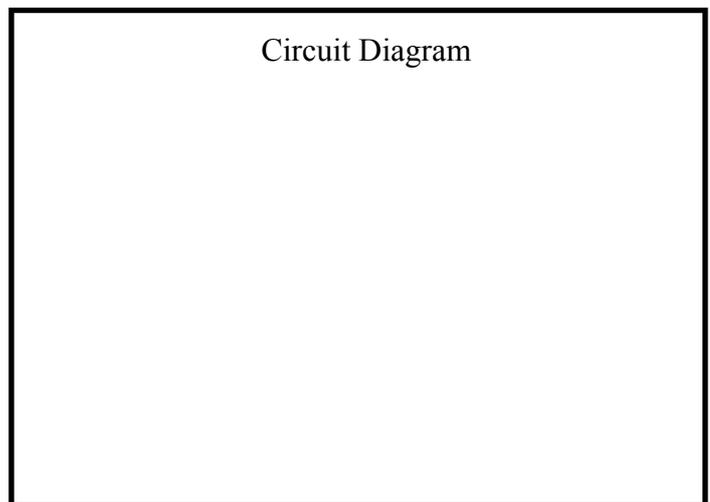


(e) Draw a circuit diagram of the electrical system for the Jitterbug.

6 Marks



Jitterbug Electrical System



(a) A drawing of a tape dispenser is shown.

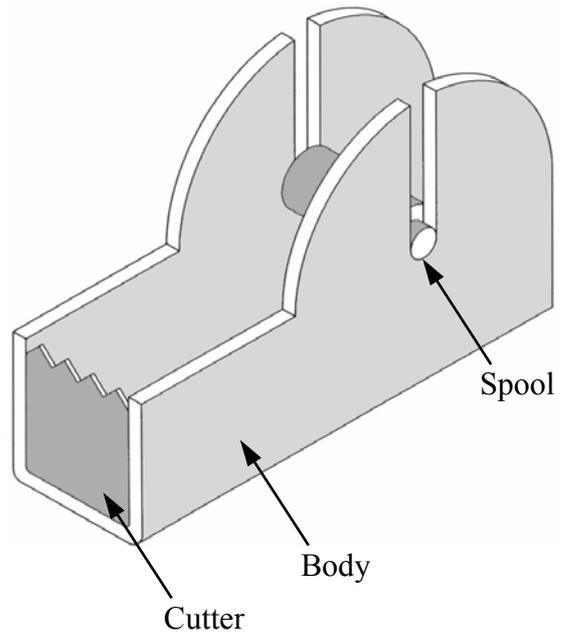
10 Marks

(i) Name **two** sheet materials that could be used to make the body of the dispenser.

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

(ii) Select **one** of these materials and list **three** processes used in the manufacture of the body before bending to shape.

- Material: \_\_\_\_\_
- Process 1: \_\_\_\_\_
- Process 2: \_\_\_\_\_
- Process 3: \_\_\_\_\_



(iii) Describe how the body of the dispenser can be bent to shape.

\_\_\_\_\_

\_\_\_\_\_

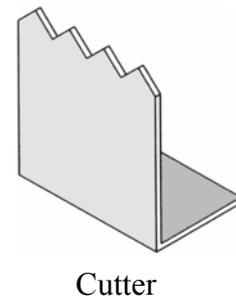
\_\_\_\_\_

(b) A drawing of the cutter for the tape dispenser is shown.

10 Marks

(i) Name **two** suitable methods of joining the cutter to the body of the tape dispenser.

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



(ii) Describe how the slot in the tape dispenser is formed.

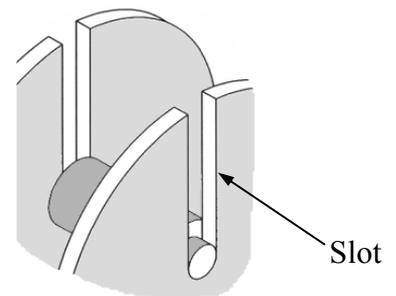
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

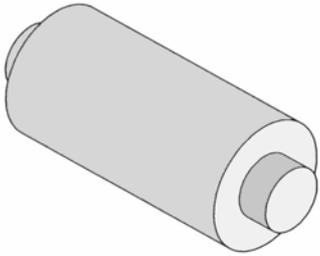
\_\_\_\_\_



6 Marks

(c) (i) Name a suitable material to make the spool and name a machine used to shape it.

Material: \_\_\_\_\_ Machine: \_\_\_\_\_



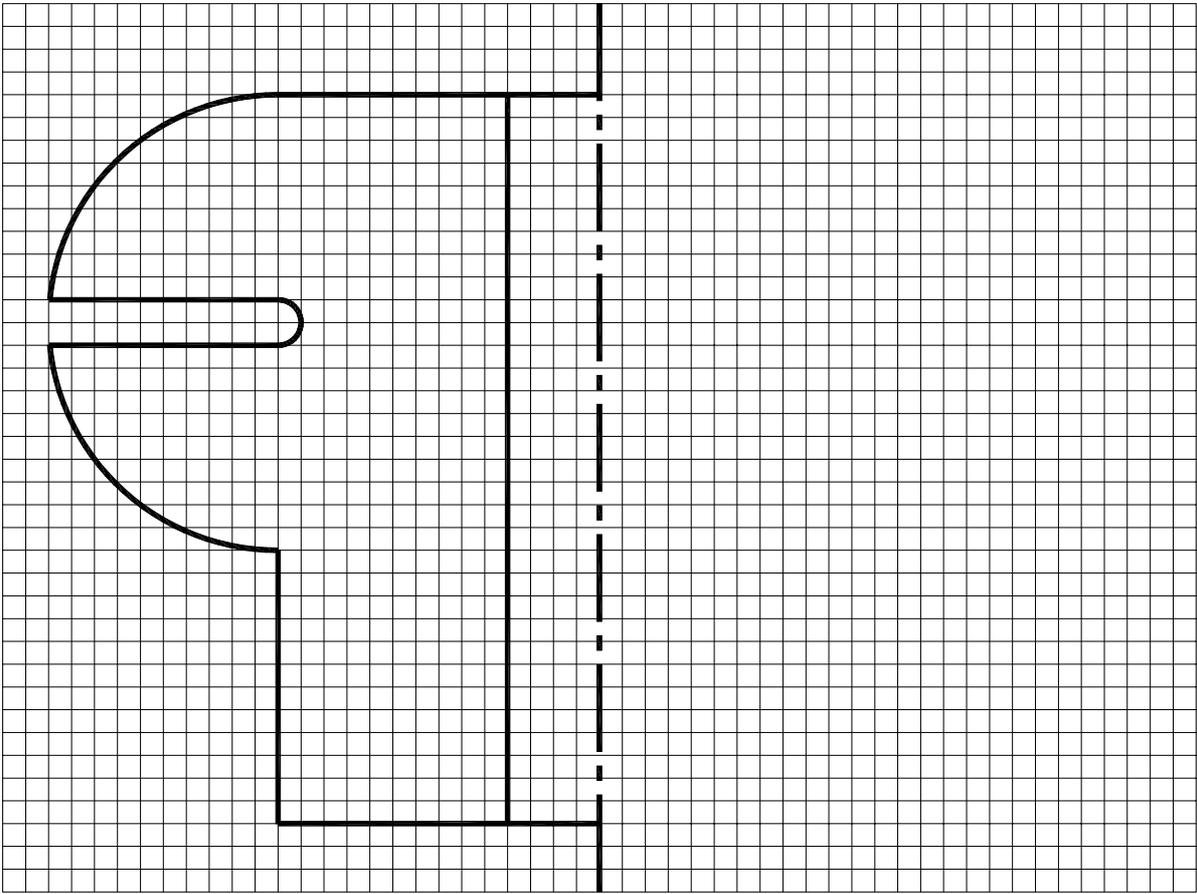
Spool

(ii) Why is the diameter of the spool reduced at both ends?

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

8 Marks

(d) A development of half the body of the dispenser is shown below. Complete this development.



6 Marks

(e) You are required to test the dispenser after manufacture. Describe **three** tests that you would carry out.

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_

3.

40 Marks

(a) Students in a Technology class were asked to design a bookrest for a desk.

12 Marks

(i) List **three** sources of information that could be used when researching this brief.

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



(ii) List **three** further stages in the design process.

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

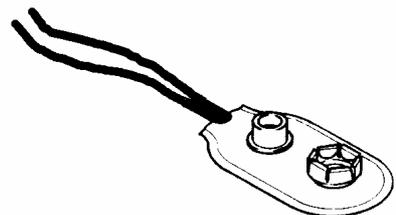
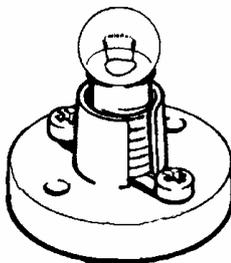
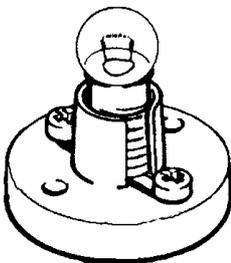
8 Marks

(b) One student decided to include **two** bulbs in her design so that people could see the book more clearly.

(i) Both bulbs were rated 300mA. What does **mA** represent?

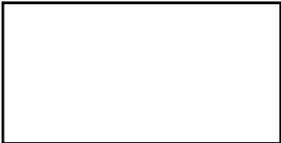
\_\_\_\_\_

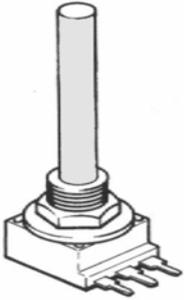
(ii) The components used in the task are shown below.  
Complete the wiring so that the bulbs are connected in **parallel**.



6 Marks

(c) (i) To vary the brightness of the bulbs the component shown in the sketch was added.  
Name this component and draw its symbol.

Name: \_\_\_\_\_ Symbol: 

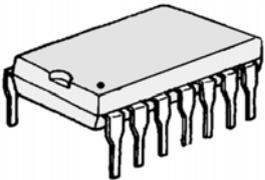


(ii) Suggest **one** other use for this component.  
\_\_\_\_\_

6 Marks

(d) (i) Microchips are used in many electrical products.  
Name **two** products that use microchips in their design.

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



Microchip

(ii) List **one** advantage of using microchips in electronic products.  
\_\_\_\_\_  
\_\_\_\_\_

8 Marks

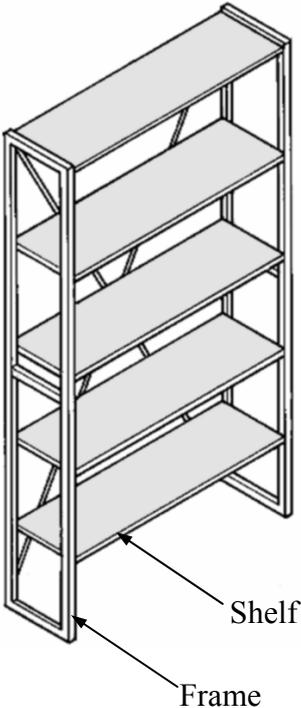
(e) A design for a book shelf is shown.

(i) Name **one** material suitable for the frame and  
a **one** other material suitable for the shelves.

Frame: \_\_\_\_\_  
Shelf: \_\_\_\_\_

(ii) Why is the “X” shaped framework used at  
the back of the shelving unit?  
\_\_\_\_\_  
\_\_\_\_\_

(iii) When books were placed on the shelving unit it was found  
that the shelves sagged in the middle. How would you  
prevent this from happening?  
\_\_\_\_\_  
\_\_\_\_\_



(iv) Books are now available in CD format.  
What do the letters CD represent? \_\_\_\_\_

4.

40 Marks

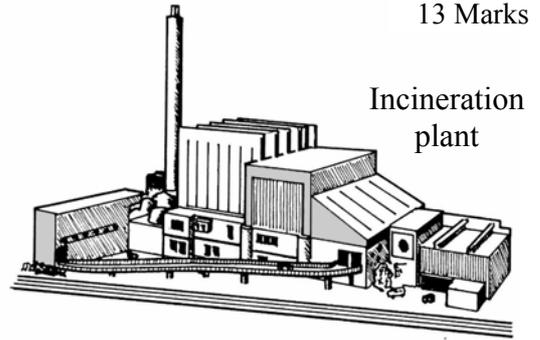
(a) (i) State **one** advantage and **one** disadvantage of using incinerators as a method of waste disposal.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



13 Marks

(ii) Suggest **one** other method of waste disposal. What are the advantages and disadvantages of this method?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(b) Give **three** examples of how Satellite technology is used today.

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

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

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



9 Marks

(c) Name **three** appliances that use electric motors.

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

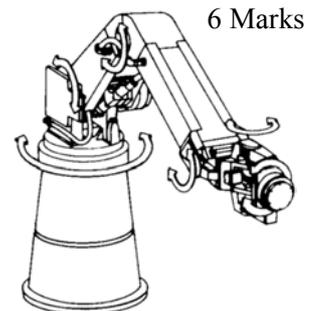
6 Marks

(d) List **three** reasons why robots are used in the manufacture cars.

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

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

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



6 Marks

(e) List **three** ways in which Technology has improved our daily lives.

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

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

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

6 Marks