

# SECONDARY SCHOOL ANNUAL EXAMINATIONS 2005

Educational Assessment Unit – Education Division

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**FORM 5****DESIGN AND TECHNOLOGY****Time: 1h 30min**

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**Name:** \_\_\_\_\_**Class:** \_\_\_\_\_

1. Underline three keywords in each of the following design briefs.

- a) Design and make a container for holding tools whilst working on a ladder.
- b) Design and make a night light for the bedroom of a six year old child.
- c) Design and make an exhibition stand for displaying model-cars in a secure manner.

**9 marks**

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2. Give three design requirements (specifications) that must be considered for the following design brief.

**Design and make a bathroom unit for holding shampoos and other toiletries.**

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_

**6 marks**

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3. Give three sources from where you can gather information during research.

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_

**6 marks**

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4. a) What is the difference between those materials that are electrical **conductors** and those that are electrical **insulators**?

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**2 marks**

- b) Name two materials that are good electrical conductors.

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**2 marks**

- c) Name two materials that are good electrical insulators.

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**2 marks**

5. Give two characteristics or properties for each of the following materials.

Material	Characteristics
PVC plastic	1.
	2.
MDF (fibreboard)	1.
	2.
Mild steel	1.
	2.
Cardboard	1.
	2.

**8 marks**

6. Give two methods for joining each of the following materials.

Material	Joining methods
Plastic to plastic	1.
	2.
Wood To wood	1.
	2.
Mild steel to mild steel	1.
	2.
Electrical wire to wire	1.
	2.

**8 marks**

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7. Draw the circuit diagrams for:

- (a) **Two** 3 Volts lamps connected in series to a 6 Volt battery.  
(b) **Two** 6 Volts lamps connected in parallel to a 6 Volt battery.

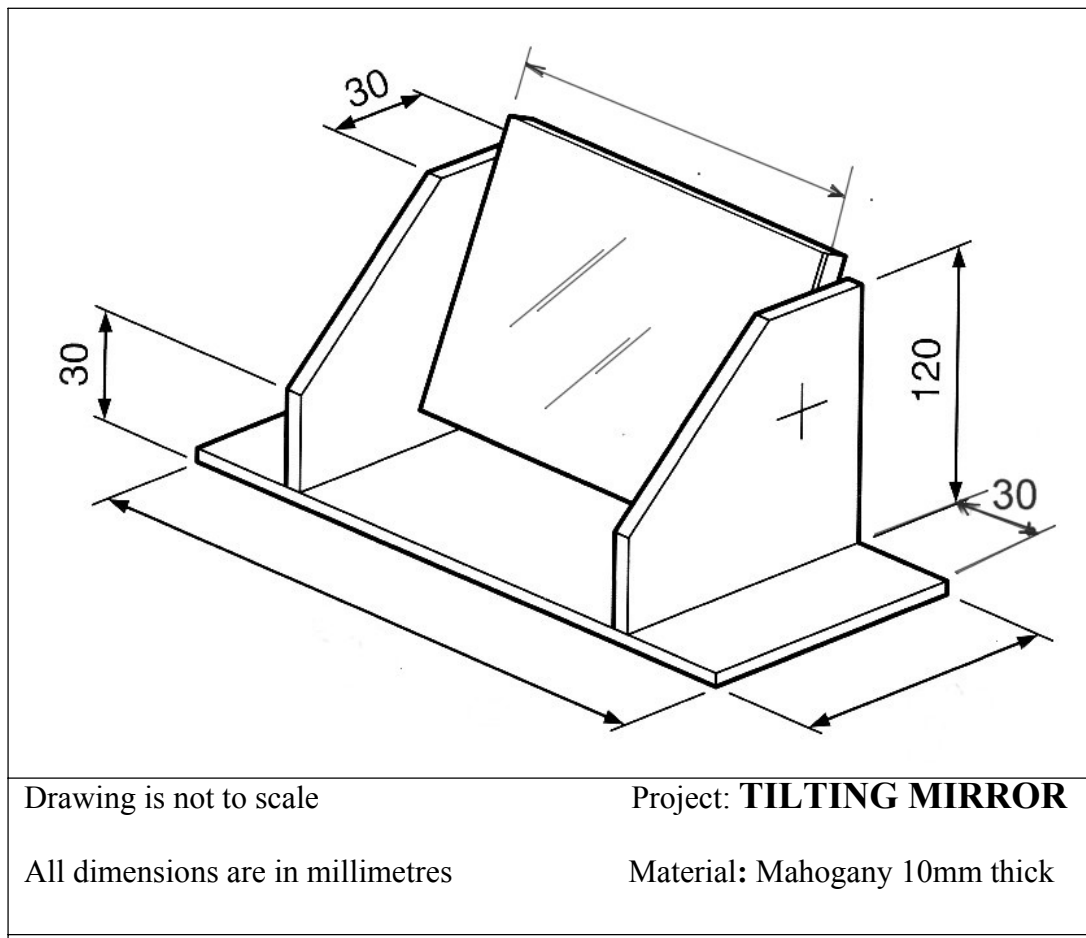
(a)

(b)

**6 marks**

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8. Below is a drawing for a tilting mirror project. The mirror is supported by a wooden back.



- a) How many wooden parts are required for this project?

**2 marks**

- b) The base is 220mm X 100mm. Show these measurements correctly in the above drawing.

**2 marks**

- c) Write down on the drawing, the missing width of the mirror's backing. Allow 1mm clearance on each side.

**4 marks**

- d) Name two suitable methods to join the uprights to the base.

\_\_\_\_\_

**2 marks**

9. (a) Which instrument is used to measure the value of a resistor?

\_\_\_\_\_

**2 marks**

- (b) Why does an LED require to be connected in series to a resistor?

\_\_\_\_\_

**2 marks**

- (c) What are the two legs of an LED called?

\_\_\_\_\_ and \_\_\_\_\_

**2 marks**

- (d) Which leg of the LED is connected to the positive terminal of a battery?

\_\_\_\_\_

**2 marks**

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10. Draw the symbols for the following electronic components.

Component	Symbol		Component	Symbol
Resistor			Capacitor	
Buzzer			LED	

**8 marks**

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11. Which proper tool is used to do each of the following tasks?

TASK	TOOL
checking squareness ( $90^0$ ) of two edges	
cutting mild steel flat bar	
marking the centre of a hole on iron	
Connecting an LED to a resistor	

**8 marks**

12. Give one safety precaution for each of the following situations.

(a) When using a craft knife:

\_\_\_\_\_

(b) When using a bench drill:

\_\_\_\_\_

(c) When using a sanding machine:

\_\_\_\_\_

**6 marks**

13. What sort of structure is each of these?

(a) Chair (a) \_\_\_\_\_

(b) Lunch container (b) \_\_\_\_\_

(c) Ice cube (c) \_\_\_\_\_

(d) Cardboard box (d) \_\_\_\_\_

(e) Bicycle (e) \_\_\_\_\_

**5 marks**

14. Say whether the following statements are true or false.

		True or False
1	Copper is a ferrous metal.	
2	Soft solder is an alloy of tin and lead.	
3	An 80 grade sand-paper is smoother than one of a 100 grade.	
4	A scale of 1:1 on a drawing means double the size.	
5	Alloys change the properties of metals.	
6	Polystyrene is a thermosetting plastic.	

**6 marks**