

# SECONDARY SCHOOL ANNUAL EXAMINATIONS 2003

Educational Assessment Unit – Education Division

**FORM 5**

**TECHNOLOGY EDUCATION**

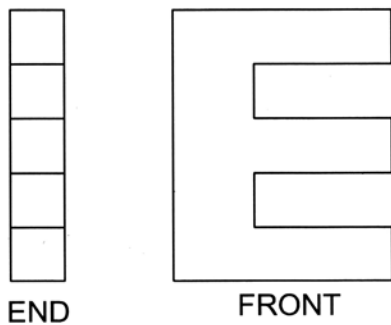
**TIME: 2 hours**

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

Class: \_\_\_\_\_

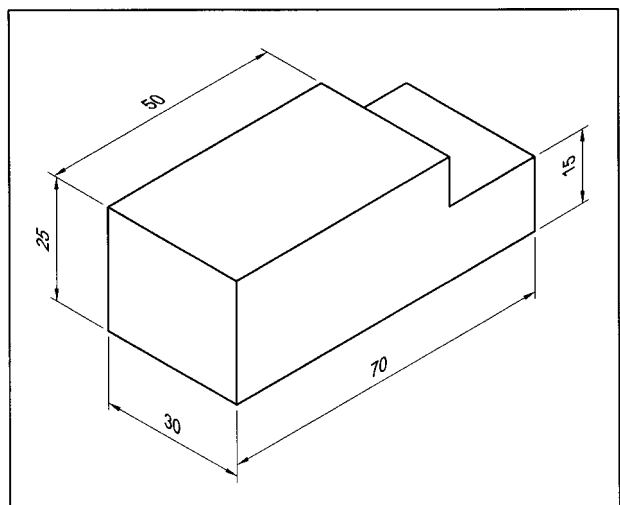
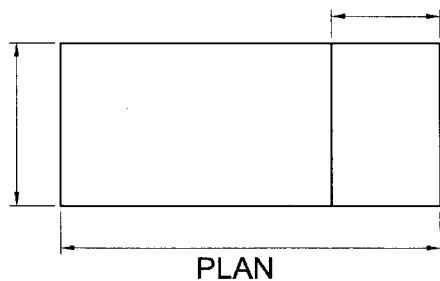
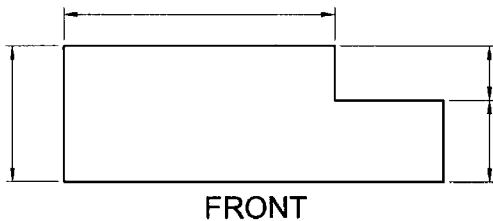
## Answer all questions

1. Below are the front and side views of an object. Draw the figure shown in a 3D representation. You can either choose to use freehand sketching or drawing equipment.



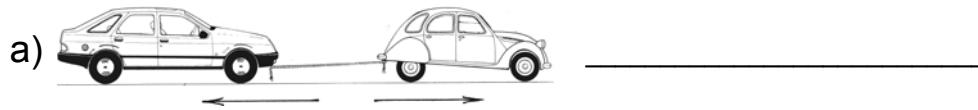
(8 marks)

2. Fill in dimensions on the orthographic drawing by referring to those on the isometric drawing.



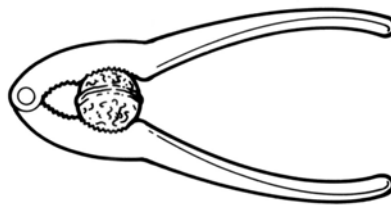
(8 marks)

3. What type of force is represented in each of the following:



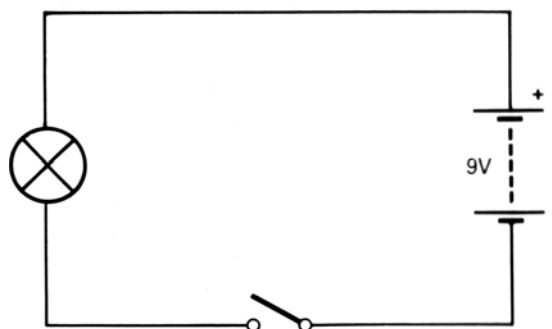
(6 marks)

4. Show on this sketch the position of :  
a) the fulcrum (b) the load (c) the effort



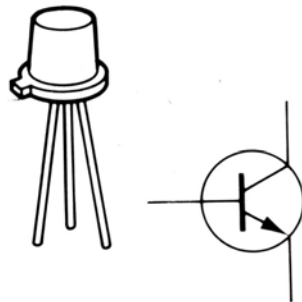
(6 marks)

5. Identify the components in the circuit shown below.



(6 marks)

6. On the drawing of this NPN transistor indicate:  
a) the base (b) the collector (c) the emitter.



(6 marks)

7. Which one of these statements refers to the **EVALUATION** stage of the design process?

- a) A statement which states how the problem is to be solved. ☐
- b) A description of what materials are to be used. ☐
- c) A check of whether the solution satisfies the design requirements. ☐

(2 marks)

8. Complete this table using the following words:

Natural, Ferrous, Man-made, Thermo-plastic, Thermo-setting, Non-ferrous.

WOOD	→ Oak	→	_____
	→ Chipboard	→	_____

METALS	→ Iron	→	_____
	→ Tin	→	_____

PLASTICS	→ Acrylic	→	_____
	→ GRP ( <i>fibre glass</i> )	→	_____

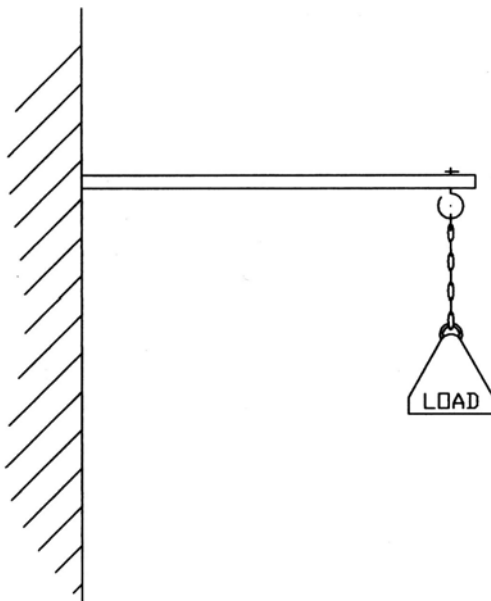
(12 marks)

9. Tick (✓) the column under the correct heading to show what type of structure each object is. *The first one has been done for you.*

OBJECT	SHELL STRUCTURE	FRAME STRUCTURE	NATURAL STRUCTURE	MAN-MADE STRUCTURE
<i>Bicycle</i>		✓		✓
Egg				
Glass bottle				
Human skeleton				
Ladder				

(4 marks)

10. The figure shows a load hanging from a beam.



- Show how a heavier weight can be supported on this beam by adding another member.
- State whether the member you added is under compression or in tension.
- State whether the member you added is a strut or a tie.

(6 marks)

11. Classify the following materials as either insulators or conductors.

MATERIAL	INSULATOR	CONDUCTOR
<i>Example: Plastic</i>	✓	
Copper		
Glass		
Wood		
Aluminium		

(8 marks)

**12. Draw the symbol for each component.**

COMPONENT	SYMBOL
Fuse	
Signal lamp	
Buzzer	
LED	

(8 marks)

---

**13. What energy conversion is involved in each of the following?**

- a) Electric kettle: From \_\_\_\_\_ energy, to \_\_\_\_\_ energy.  
b) Battery: From \_\_\_\_\_ energy, to \_\_\_\_\_ energy.  
c) Radio: From \_\_\_\_\_ energy, to \_\_\_\_\_ energy.

(6 marks)

---

**14. State two safety precautions when using electrically operated tools.**

---

---

---

---

(4marks)

---

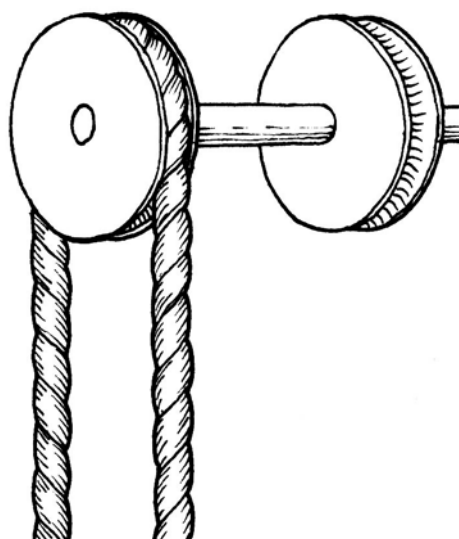
15. Give two requirements, that you would include in your specification, for the type of material suitable for making a medicine cupboard for hanging in a bathroom.

---

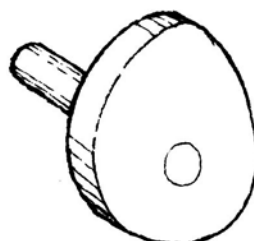
---

(4 marks)

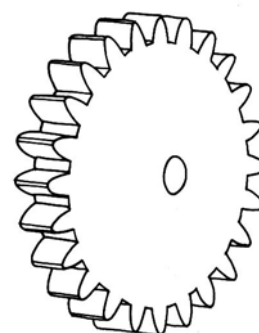
16. The following are parts used to produce movements in technology education project work. What is each one called?



(a) .....



(b) .....



(c) .....

(6marks)