S68

1921

Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination, 2003

TECHNOLOGY

ORDINARY LEVEL
160 Marks

Wednesday 18 June, Afternoon, 2.00 to 4.00

Centre Number ____ Examination Number ____

INSTRUCTIONS

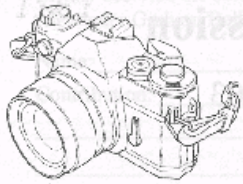
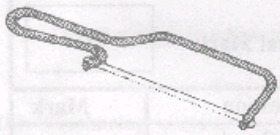
1. **Answer Section A and <u>any two</u> questions from Section B.**
2. **Write your answers in the spaces provided or tick the appropriate box.** ☑
3. **Hand up this paper at the end of the examination.**

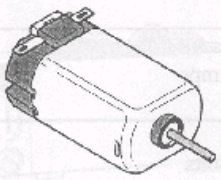
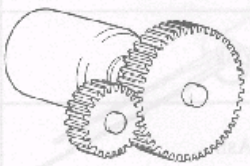
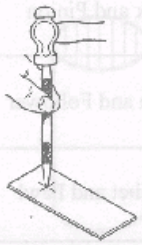
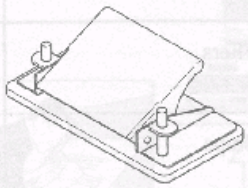
1.	Total of end of page totals	
2.	Aggregate total of all disallowed question(s)	
3.	Total mark awarded (1 minus 2)	
4.	Bonus mark for answering through Irish (if applicable)	
5.	Total mark awarded if Irish Bonus (3+4)	
	<u>Note</u>: The mark in row 3 (or row 5 if an Irish bonus is awarded) must equal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

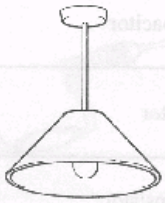
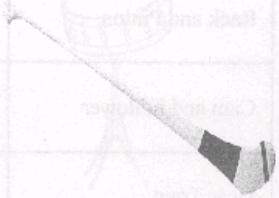
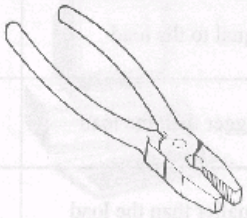
For Examiner	
Total Mark	
Question	**Mark**
Section A	
Section B Q1	
Section B Q2	
Section B Q3	
Section B Q4	
Total	
Grade	

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

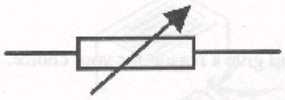
SECTION A – 80 MARKS ANSWER ANY SIXTEEN QUESTIONS FROM THIS SECTION

1. 	This camera is shown in:	Elevation	
		Isometric	
		Plan	
2. 	This bit and brace is used to bore a hole in:	Steel	
		Glass	
		Wood	
3. 	The drum skin is in:	Compression	
		Tension	
		Torsion	
4. 	This is a:	Coping Saw	
		Junior Hacksaw	
		Piercing Saw	
5. 	Which of these programs would you use to write a letter?	Spreadsheet	
		Database	
		Word Processor	

6. 	Pastry cutters are generally made from:	Iron	
		Wood	
		Stainless Steel	
7. 	This is a:	Capacitor	
		Motor	
		Transistor	
8. 	This mechanism is a:	Rack and Pinion	
		Cam and Follower	
		Gear Train	
9. 	This tool is a:	Centre Punch	
		Chisel	
		Scriber	
10. 	When using this paper punch the effort is:	Equal to the load	
		Bigger than the load	
		Smaller than the load	

11. 	Natural fabrics are often used to cover seats. Which of these is a natural fabric?	Nylon	
		Leather	
		Polyester	
12. 	Electrical power is measured in:	Watts	
		Amps	
		Volts	
13. 	Hurleys are made from:	Pine	
		Oak	
		Ash	
14. 	This mechanism is a:	Rack and Pinion	
		Cam and Follower	
		Ratchet and Pawl	
15. 	This tool is a:	Vice Grips	
		Pliers	
		Snips	

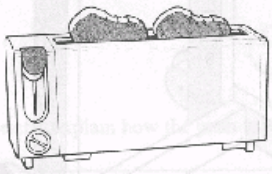
16.



Name the component represented by this symbol.

Name: _____

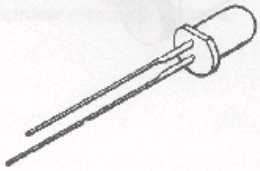
17.



An electric toaster converts electrical energy into what other form of energy?

Answer: _____

18.



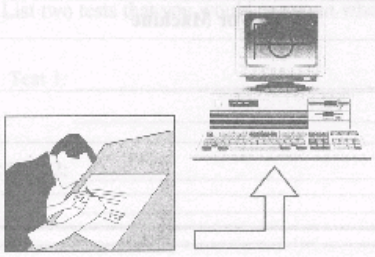
Name the electronic component shown.

Name: _____

19.

Draw a development of an open cylinder.

20.



What do the letters CAD stand for?

Answer: _____

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

1. **40 Marks**

10 Marks

(a) A toddler's truck designed by Technology students is shown. The frame and wheels of the truck are made from **different** materials.

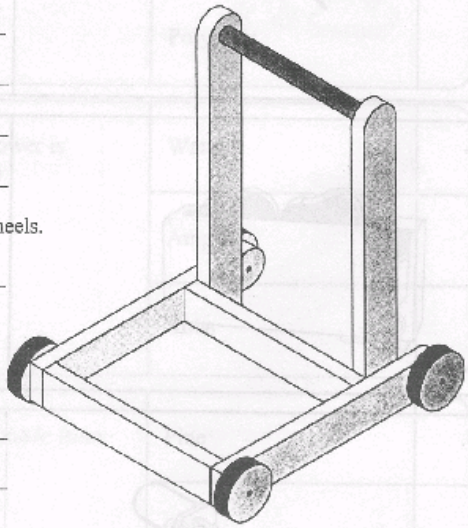
(i) Name the material you would use to make the frame of the truck and give a reason for your choice.

Material: _____

Reason for choosing: _____

_____

_____



(ii) Name a material that you would use to make the wheels.

Material: _____

(iii) Briefly explain how you would connect the wheels to the frame.

_____

_____

_____

_____

10 Marks

(b) (i) List three things that the Technology students had to consider when designing this truck.

1. _____

2. _____

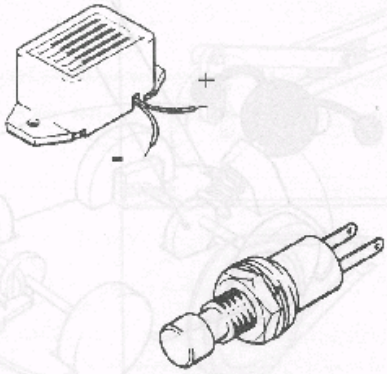
3. _____

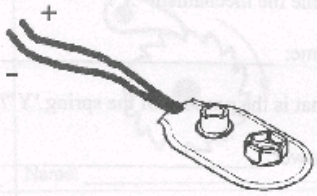
(ii) List three processes you would use to make this truck and name one tool or machine used in each process.

Process	Tool or Machine

10 Marks

(c) (i) An electronic circuit is to be included in the design which allows a toddler to switch on a buzzer. The components for the circuit are given below. Draw in the wires needed to complete the circuit.





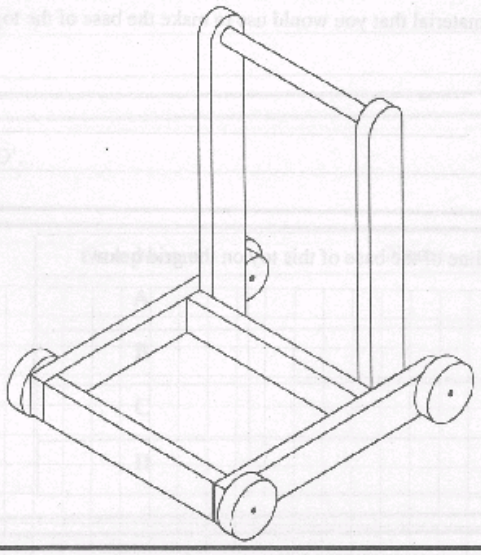
(ii) Briefly explain how the push to make switch works.

_____

_____

6 Marks

(d) Show how you would safely attach the electronic circuit to the truck.



4 Marks

(e) List two tests that you would carry out when evaluating this design.

Test 1: _____

_____

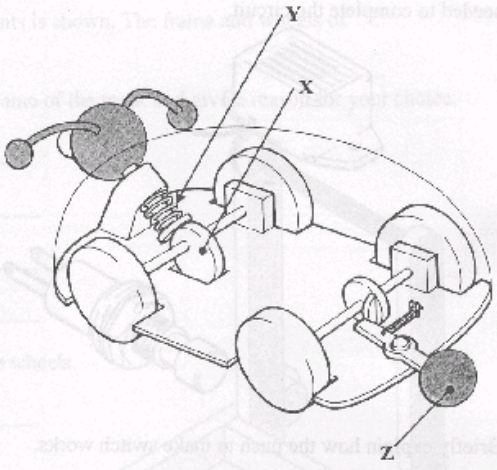
Test 2: _____

_____

2. **40 Marks**

10 Marks

(a) A mechanical toy is shown.



(i) Name the mechanism 'X'.

Name: _____

(ii) What is the purpose of the spring 'Y'?

Answer: _____

_____

_____

_____

_____

_____

(iii) Indicate on the drawing the direction in which the tail 'Z' moves as the rear wheels rotate.

(iv) Name a material that you would use to make the base of the toy and give a reason for your choice.

Material: _____

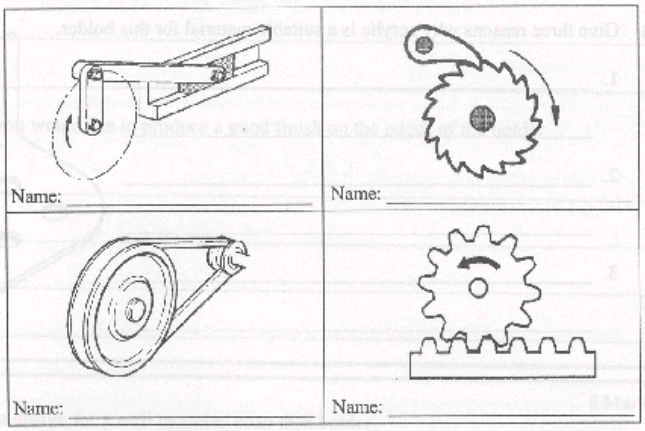
Reason: _____

_____

(b) Draw the outline of the base of this toy on the grid below. **10 Marks**

8 Marks

(c) (i) Complete the chart by naming any **three** of these mechanisms.



Name: _____ Name: _____

Name: _____ Name: _____

(ii) Select one mechanism from the chart and give an example of where it is used.

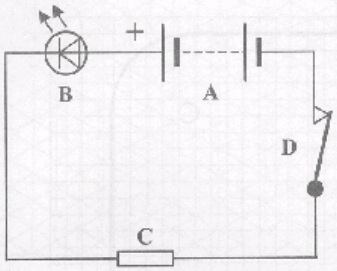
Mechanism: _____

Use: _____

_____

8 Marks

(d) Name the components 'A', 'B', 'C' and 'D'.



Component	Name
A	
B	
C	
D	

4 Marks

(e) Designers have to be very careful when designing toys for young children.
List two precautions which must be taken when designing such toys.

1. _____

_____

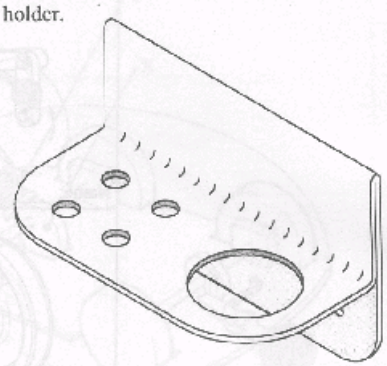
2. _____

_____

3. **40 Marks**

10 Marks

(a) A design for a wall mounted toothbrush and glass holder is shown.



(i) Give three reasons why acrylic is a suitable material for this holder.

1. _____

_____

2. _____

_____

3. _____

_____

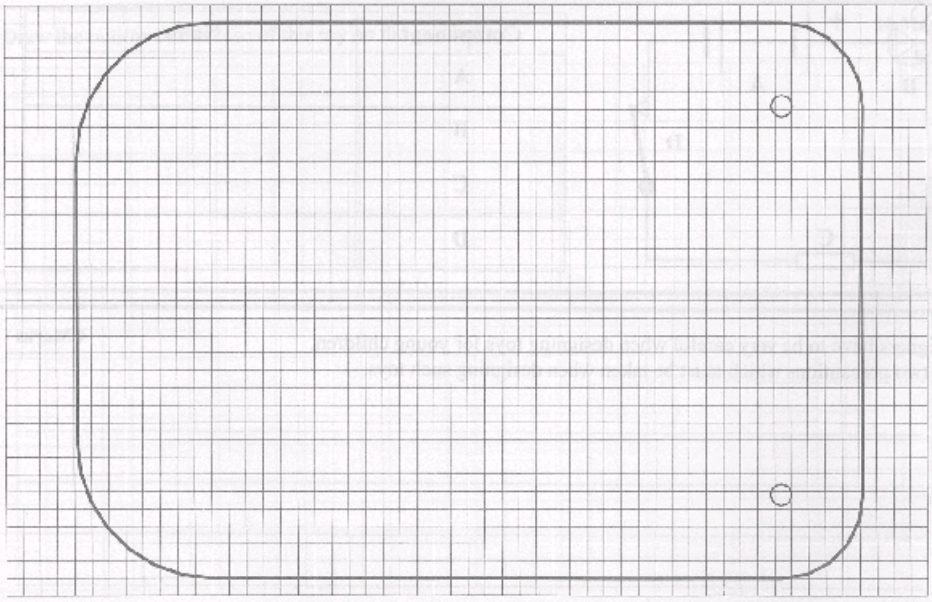
(ii) Give two precautions that should be taken to prevent the acrylic from cracking while drilling.

1. _____

2. _____

10 Marks

(b) Complete the development of the holder showing all holes and bend lines.



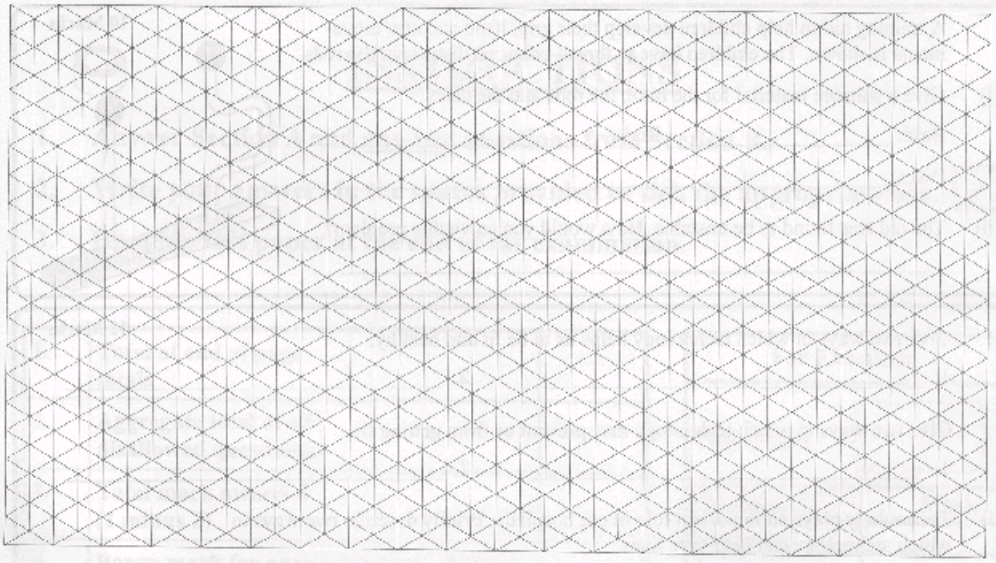
(c) (i) Briefly describe how the hole for the glass is made in the holder. **8 Marks**

(ii) List two processes that you would use to produce a good finish on the edges of the holder.

1. _____

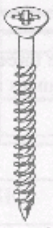
2. _____

(d) Draw an isometric sketch of a design for a wall mounted soap dish holder. The soap dish holder is to be made from acrylic sheet. **8 Marks**



(e) Pan head screws are used to fix the holders to the wall. Why are countersunk screws unsuitable for this purpose? **4 Marks**

Pan head screw



Countersunk screw

4. **40 Marks**

(a) **12 Marks**

(i) Briefly describe the contribution made to technology by one of the following:
Alexander Graham Bell, Charles Babbage, John Logie Baird, Archimedes, Guglielmo Marconi.

Name: _____

Contribution: _____

_____

_____

(ii) List three recent developments in modern technology.

1. _____

2. _____

3. _____

(iii) State the difference between renewable and non-renewable energy. Give an example of each type.

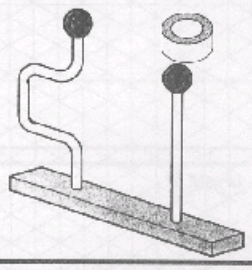
_____

_____

Renewable: _____ Non-renewable: _____

(b) **10 Marks**

A training aid to help children develop their grip, hand and arm movements is shown. The children have to thread coloured discs onto the rods.



(i) Give a suitable material for the base, the rods and the discs.

Base: _____ Rods: _____

Discs: _____

(ii) The aid was found to be unstable. How would you solve this problem?

_____

(c) **12 Marks**

(i) Give two ways in which technology helps us to be fit and healthy.

1. _____ 2. _____

Give two ways in which technology may prevent us from getting fit.

1. _____ 2. _____

(ii) Technology plays an important role in our hospitals. Briefly describe two ways in which technology can help save lives.

1. _____

2. _____

(d) **6 Marks**

Give three examples of how the entertainment industry has benefited from advances in technology.

1. _____

2. _____

3. _____