



**TECHNOLOGY**

3548

Junior Certificate Examination, 2003

HIGHER LEVEL

200 Marks

Wednesday, 18<sup>th</sup> June, Afternoon, 2:00 to 4:00

**SECTION A**

**INSTRUCTIONS**

- 1. Answer Section A (short answer questions). 100 Marks
- 2. Answer either (a) or (b) from each question in Section B. 50 Marks
- 3. Answer one question from Section C. 50 Marks
- 4. Hand up this paper at the end of the examination along with answer sheets for Section B and C.

Centre  
Number

Examination  
Number

For Examiner	
Total Mark	<input type="text"/>
Question	Mark
Section A	
Section B Q1 (a)	<input type="text"/>
(b)	<input type="text"/>
Q2 (a)	<input type="text"/>
(b)	<input type="text"/>
Section C Q3	<input type="text"/>
Q4	<input type="text"/>
Q5	<input type="text"/>
Q6	<input type="text"/>
Total	<input type="text"/>
Grade	<input type="text"/>

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

**Section A** Answer 25 questions from this section - all questions carry equal marks. 100 Marks

1. Complete the two point perspective of the object shown.

2. Use shading to indicate the materials shown on the sketch.

3. What does each of the symbols shown indicate?

(i) (ii)

(i): \_\_\_\_\_  
 (ii): \_\_\_\_\_

4. State the meaning of the following abbreviations.

(i) CD: \_\_\_\_\_  
 \_\_\_\_\_

(ii) ROM: \_\_\_\_\_  
 \_\_\_\_\_

5. State **two** advantages of computer aided drawing over traditional drawing.

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

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



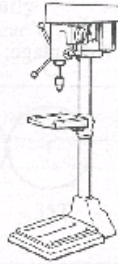
6. Name two synthetic fabrics.



(i): \_\_\_\_\_

(ii): \_\_\_\_\_

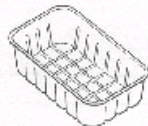
7. State two safety precautions which should be taken when drilling thin material.



(i): \_\_\_\_\_

(ii): \_\_\_\_\_

8. Name one suitable material for manufacturing each of the objects shown and give one reason for your selection.



(i) food container



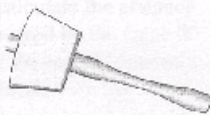
(ii) key

(i) Material: \_\_\_\_\_  
Reason: \_\_\_\_\_

(ii) Material: \_\_\_\_\_  
Reason: \_\_\_\_\_

9. Name each of the tools shown and suggest a suitable use for each.

(i)



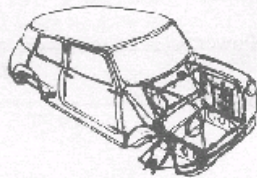
(ii)



(i) Name: \_\_\_\_\_  
Use: \_\_\_\_\_

(ii) Name: \_\_\_\_\_  
Use: \_\_\_\_\_

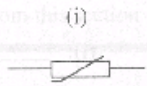
10. Give two reasons why a car should be dismantled before scrapping.



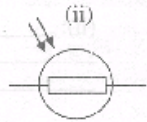
(i): \_\_\_\_\_

(ii): \_\_\_\_\_

11. Name the **two** electronic components represented by the symbols shown.

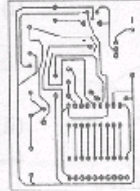


(i): \_\_\_\_\_



(ii): \_\_\_\_\_

12. State **one** advantage of using a printed circuit board (PCB) in preference to VeroBoard.



VeroBoard

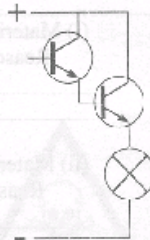
PCB

Advantage: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

13. Name the transistor arrangement shown, *and* state why it might be used.



Arrangement: \_\_\_\_\_

\_\_\_\_\_

Why used: \_\_\_\_\_

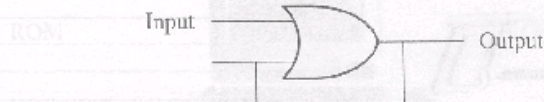
\_\_\_\_\_

14. The OR gate shown is configured as a latch.

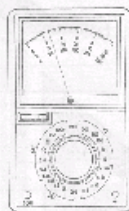
Latch: \_\_\_\_\_

\_\_\_\_\_

Explain the term LATCH.



15. Name the units used to measure each of the following :



(i) Current: \_\_\_\_\_

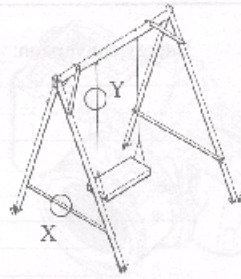
(ii) Voltage: \_\_\_\_\_

(iii) Power: \_\_\_\_\_

(iv) Resistance: \_\_\_\_\_



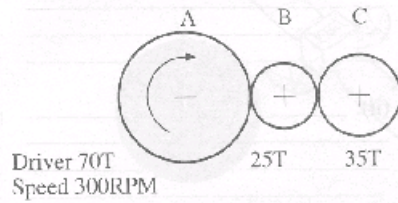
16. Name the forces acting in the members shown.



Force at X: \_\_\_\_\_

Force at Y: \_\_\_\_\_

17. Calculate the speed and indicate clearly the turning direction of the driven gear 'C'.

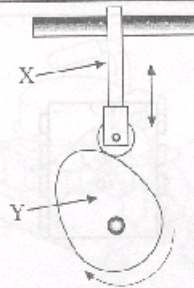


Speed: \_\_\_\_\_

Direction: \_\_\_\_\_



18. Name the parts labelled 'X' and 'Y' in the mechanism shown.

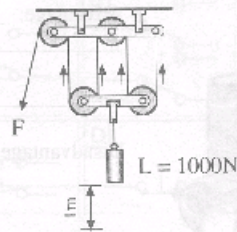


X: \_\_\_\_\_

Y: \_\_\_\_\_

19. Calculate the force 'F' required to hold the load 'L' with the pulley system shown.

Calculate the distance moved by the force 'F' if the load 'L' moves a distance of 1m.

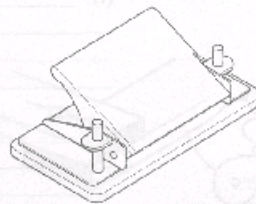


Force F: \_\_\_\_\_

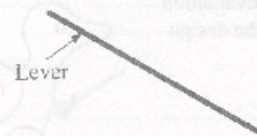
Distance: \_\_\_\_\_

20. The paper punch shown is an example of a class 2 lever.

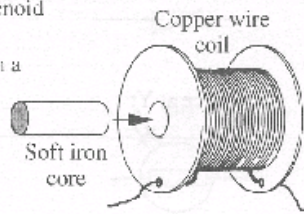
Complete the line diagram of the class 2 lever to show the position of the fulcrum, load and effort.



Sketch



21. State **one** energy conversion taking place in a solenoid and give **one** use for such a solenoid.



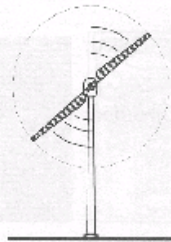
Energy conversion: \_\_\_\_\_

\_\_\_\_\_

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

\_\_\_\_\_

22. State **two** reasons why it is important to invest in alternative energy sources.



Wind generator

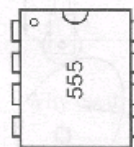
(i): \_\_\_\_\_

\_\_\_\_\_

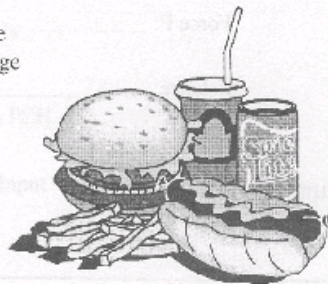
(ii): \_\_\_\_\_

\_\_\_\_\_

23. Identify clearly the position of pins 1 and 8 on the chip shown.



24. State **one** advantage and **one** disadvantage of food additives.



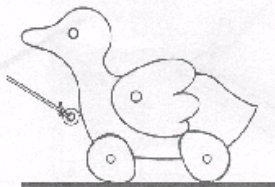
Advantage: \_\_\_\_\_

\_\_\_\_\_

Disadvantage: \_\_\_\_\_

\_\_\_\_\_

25. State **two** reasons for a final evaluation as part of the design process.



(i): \_\_\_\_\_

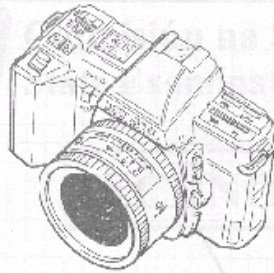
\_\_\_\_\_

(ii): \_\_\_\_\_

\_\_\_\_\_



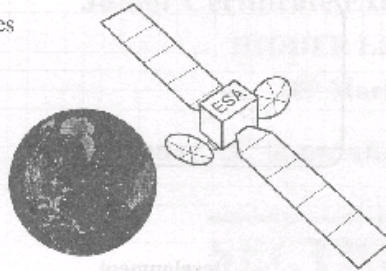
26. State **two** ways in which technology has changed the way images are recorded.



(i): \_\_\_\_\_  
 \_\_\_\_\_

(ii): \_\_\_\_\_  
 \_\_\_\_\_

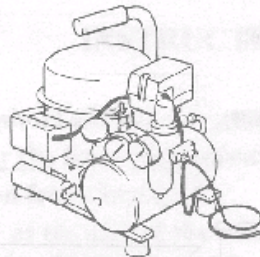
27. Give **two** uses of satellites.



(i): \_\_\_\_\_  
 \_\_\_\_\_

(ii): \_\_\_\_\_  
 \_\_\_\_\_

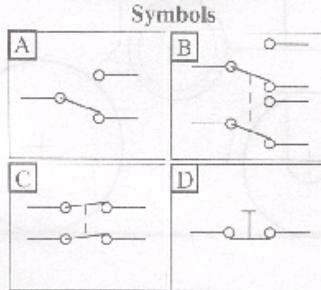
28. State **two** uses of pneumatic power.



(i): \_\_\_\_\_  
 \_\_\_\_\_

(ii): \_\_\_\_\_  
 \_\_\_\_\_

29. Match the switch names given with the correct symbol.



**Switch Names**

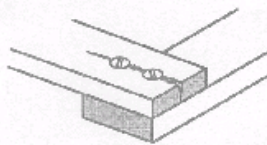
Push to Break: \_\_\_\_\_

Single Pole Double Throw: \_\_\_\_\_

Double Pole Double Throw: \_\_\_\_\_

Double Pole Single Throw: \_\_\_\_\_

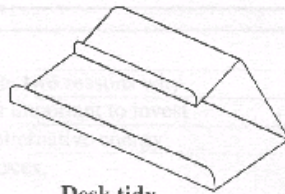
30. Suggest **two** ways of reducing the risk of the wood splitting in the joint shown.



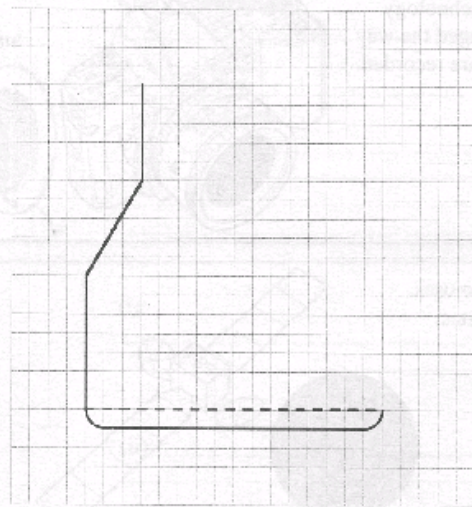
(i): \_\_\_\_\_  
 \_\_\_\_\_

(ii): \_\_\_\_\_  
 \_\_\_\_\_

31. Complete the development of the desk tidy shown including all bend lines.



Desk tidy



Development

32. Clearly dimension the sketch of the toy to indicate:

- (i) the overall height,
- (ii) the overall length,
- (iii) the distance between the wheel centres.

The sketch is shown full size.

