Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination, 2009

Technology

Higher Level

Wednesday 17 June
Afternoon, 2.00 - 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 Section C**.

Centre Number

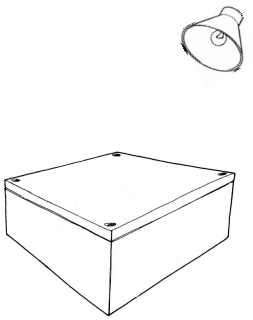
Examination Number

For Examiner	
Question	**Mark**
Section A	
Section B Q1 (a)	
(b)	
Q2 (a)	
(b)	
Section C Q3	
Q4	
Q5	
Q6	
Total	
Grade	

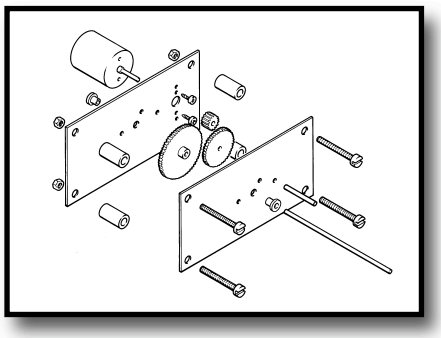
Write your examination number in the box provided on this page.

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

1. Shade the container shown to suggest a light source in the given position.



2. Name the type of view shown in the sketch.



View: _____

3. In relation to computers state the meaning of the following abbreviations:

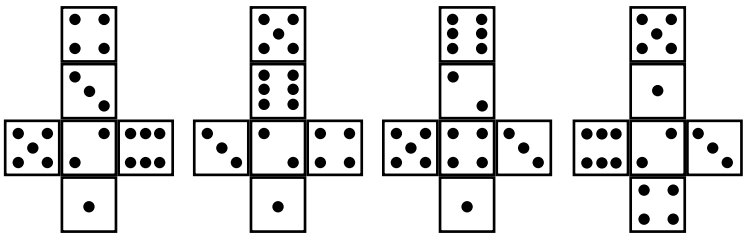
(i) CPU

(ii) CAD.

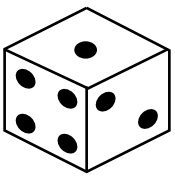
CPU: _____

CAD: _____

4. Which one of the developments A, B, C or D, will fold to make the dice shown?



A B C D



Answer: _____

5. State the meaning of each of the symbols shown.

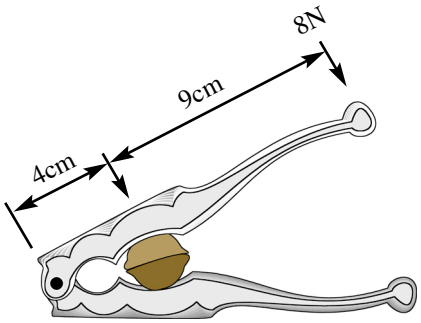
X

Y

X: _____

Y: _____

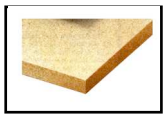
6. Calculate the force applied to the nut in the nutcracker shown.



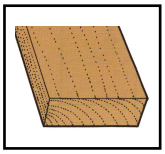
Calculation:

Force: _____

7. State **one** advantage and **one** disadvantage of MDF over natural wood.



MDF



Natural wood

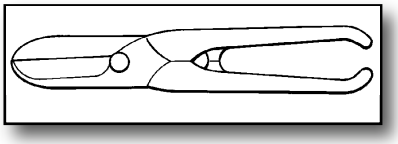
Advantage: _____

Disadvantage: _____

8. Name the tool shown

and

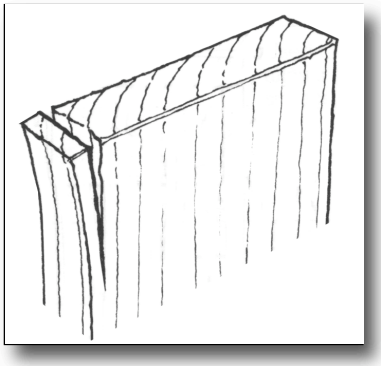
name a material suitable for cutting with this tool.



Tool: _____

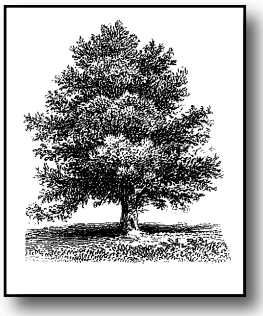
Material: _____

9. State briefly how the end grain split can be prevented when planing wood.



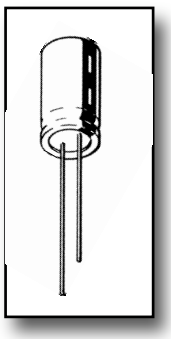
Answer: _____

10. Indicate clearly in the table shown, if each named wood is a hardwood or a softwood.

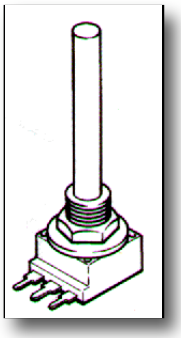


Wood	*Hardwood*	*Softwood*
Oak		
Teak		
Beech		
Pine		

11. Sketch the electronic symbol for each component shown.



Capacitor

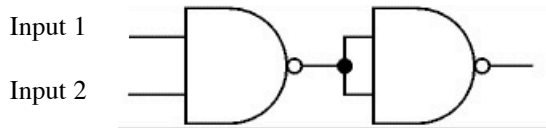


Variable resistor

Capacitor

Variable resistor

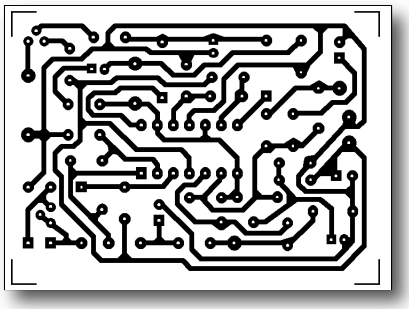
12. Complete the truth table for the NAND gate combination shown.



Truth Table

Input1	Input 2	Output
1	1	
1	0	
0	1	
0	0	

13. State **two** advantages of using a printed circuit board in a circuit.



(i): _____

_____

_____

_____

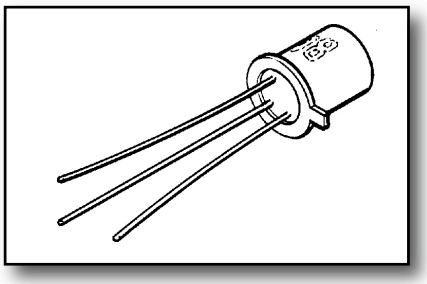
(ii): _____

_____

_____

_____

14. Indicate clearly how the **emitter** can be identified on the transistor shown.



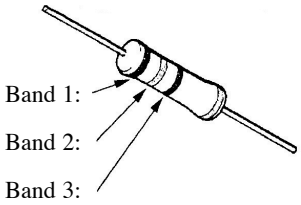
Answer: _____

_____

_____

_____

15. Using the colour code table shown, state the value of resistors A and B.



Colour	Value
Black	*0*
Brown	*1*
Red	*2*
Orange	*3*
Yellow	*4*
Green	*5*
Blue	*6*
Violet	*7*
Grey	*8*
White	*9*

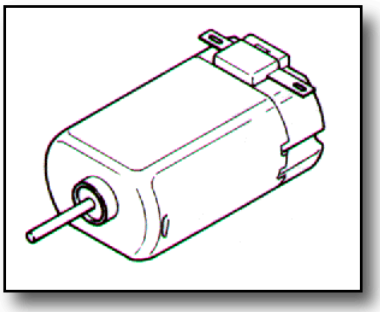
	Band 1	*Band 2*	*Band 3*	*Value*
Resistor A	Brown	Black	Red	
Resistor B	Orange	Orange	Brown	

16. Name the mechanism shown which will produce an oscillating motion in the toy caterpillar.

Mechanism: _____

_____

17. Name **two** energy conversions which take place when an electric current is applied to the motor shown.



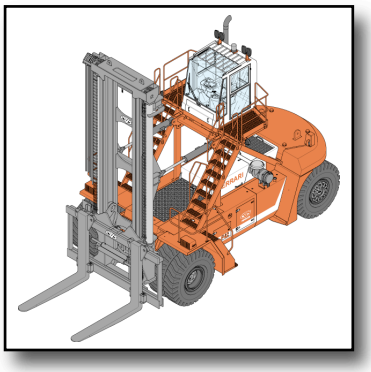
From: _____

To: _____

From: _____

To: _____

18. State **two** reasons why a chain is used in preference to a belt in a forklift hoist.



(i): _____

_____

_____

_____

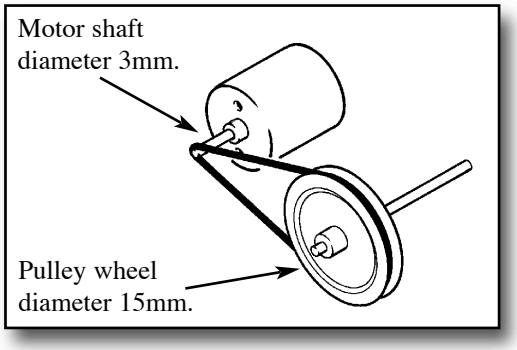
(ii): _____

_____

_____

_____

19. If the motor shaft turns at 90RPM calculate the speed of rotation of the pulley shaft.

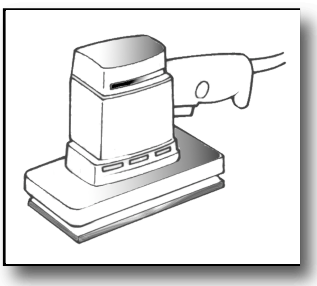


Calculation:

Speed: _____

_____

20. State **two** safety precautions which must be observed when using the power tool shown.



Orbital sander

(i): _____

_____

_____

_____

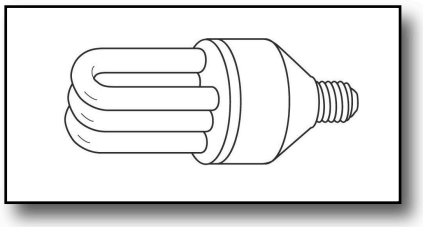
(ii): _____

_____

_____

_____

21. State **two** reasons why older household bulbs should be replaced with the type of bulb shown.

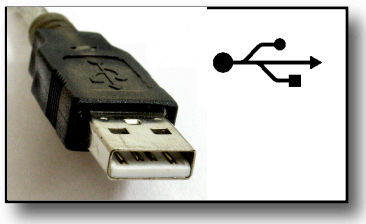


CFL bulb

(i): _____

(ii): _____

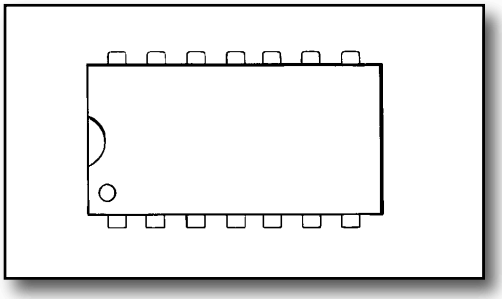
22. Name **two** USB devices which can be used with a computer.



(i): _____

(ii): _____

23. Indicate clearly on the sketch the location of pins 4 and 8 on the chip shown.

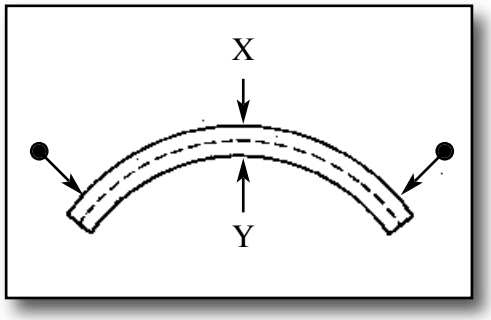


24. State **two** reasons why digital cameras are now more popular than film cameras.

(i): _____

(ii): _____

25. Name the forces operating at X and at Y in the bending beam shown.



X: _____

Y: _____

26. Name **two** technological developments which have improved computer laptop design.

(i): _____

_____

_____

_____

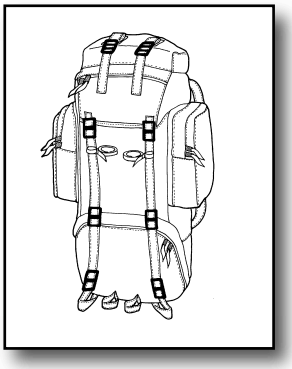
(ii): _____

_____

_____

_____

27. Indicate clearly in the table shown, if each named fabric is **natural** or **synthetic**.



Fabric	*Natural*	*Synthetic*
Wool		
Nylon		
Polyester		
Linen		

28. State **two** ways in which technology has made cars more environmentally friendly.

(i): _____

_____

_____

_____

(ii): _____

_____

_____

_____

29. State **two** advantages in using laser scanners at supermarket checkouts.

(i): _____

_____

_____

_____

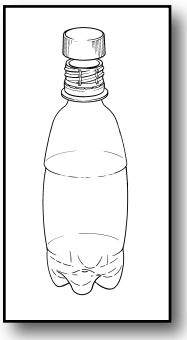
(ii): _____

_____

_____

_____

30. Explain briefly, the term **thermoplastic**.



Thermoplastic: _____

_____

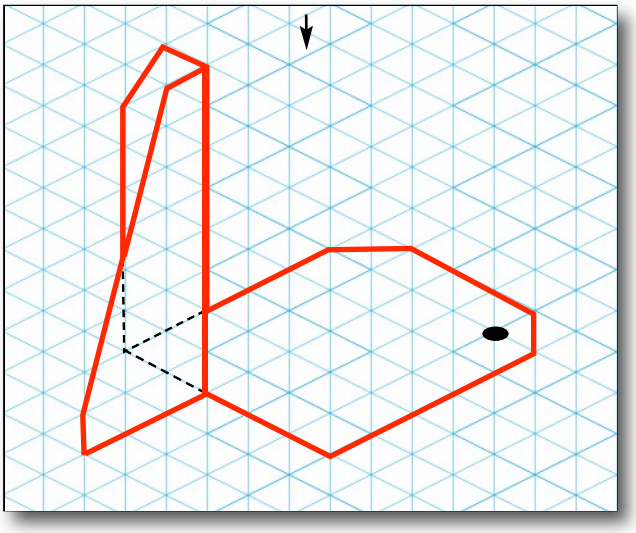
_____

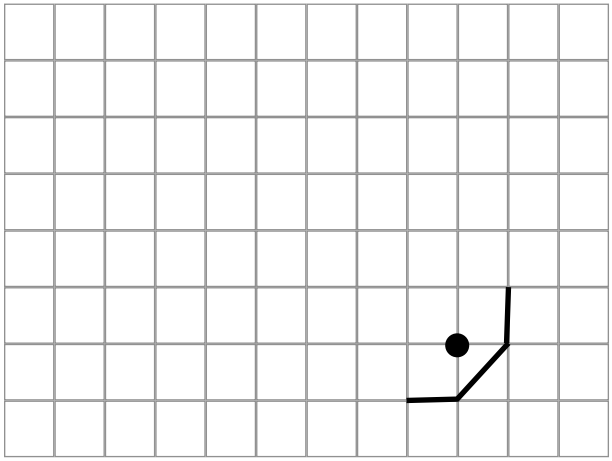
_____

_____

_____

31. Complete the plan view of the part shown.





32. Complete the development of the one piece letter holder shown.