Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination, 2015

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**.

SECTION A		For the Examiner	
No. of Questions		Mark	Total
	x	4	
	x	3	
	x	2	
	x	1	
	x	0	
	x	/	
Total (32)		**Total 1**:	
Disallowed		Mark	Total
	x	4	
	x	3	
	x	2	
	x	1	
Total (max 7)		**Total 2**:	
Section A Total (1-2):			

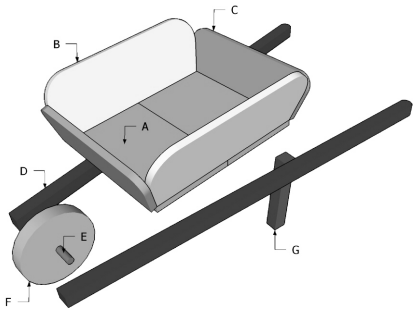
Centre Number

Examination Number

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**

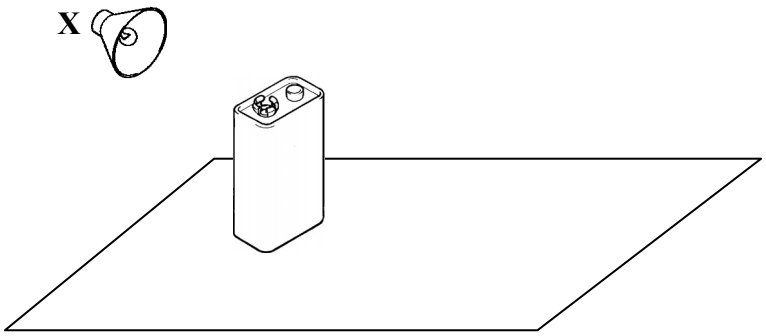
1. Name the type of drawing shown.



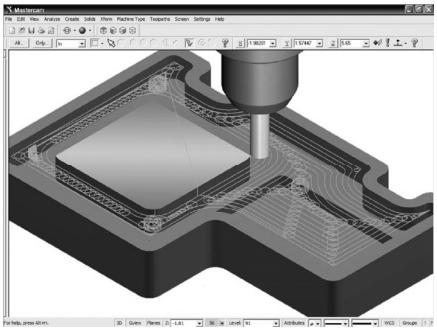
Answer: _____

_____

2. Use **two** rendering techniques on the sketch shown to suggest a light source at **X**.



3. State **two** advantages of using CAM to produce component parts.



(i): _____

_____

_____

_____

(ii): _____

_____

_____

_____

4. State **one** function of an *icon* in a graphic user interface.

Function: _____

_____

_____

_____

_____

_____

_____

5. Sketch the safety sign for an 'Electrical Hazard' in the space provided.

6. State **one** advantage and **one** disadvantage of using a manufactured board to make a project.

Advantage: _____

_____

_____

_____

Disadvantage: _____

_____

_____

_____

7. State **two** hazards associated with using a jig saw.

(i): _____

_____

_____

_____

(ii): _____

_____

_____

_____

8. Name the alloy produced by combining the following metals:

(i) Copper and Zinc,

and

(ii) Tin and Lead.

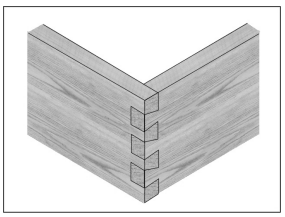
(i) Copper and Zinc.

Alloy: _____

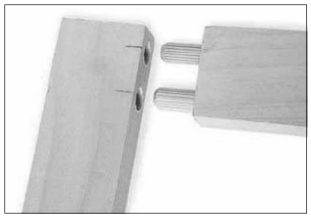
(ii) Tin and Lead.

Alloy: _____

9. Name the wood-joint shown at (i) and at (ii).



(i)



(ii)

(i): _____

_____

_____

_____

(ii): _____

_____

_____

_____

10. Name **one** natural fabric

and

one synthetic fabric

used to manufacture clothing.

Natural fabric: _____

_____

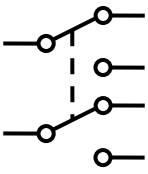
_____

Synthetic fabric: _____

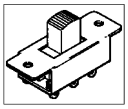
_____

_____

11. The symbol for a DPDT switch is shown.



Explain the abbreviation '**DPDT**'.



DPDT: _____

_____

_____

_____

12. State the function of the tool shown.

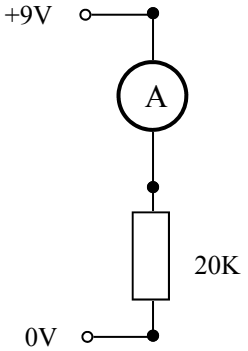
Function: _____

_____

_____

_____

13. Calculate the current measured at **A** in the circuit shown.

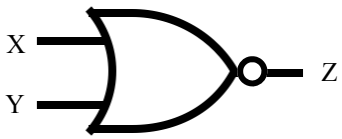


Current: _____

_____

14. The symbol for a NOR gate is shown. (OR followed by NOT)

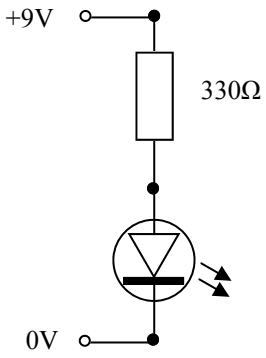
Complete the truth table for the inputs shown.



X	Y	Z
1	1	
0	1	

15. When connecting an LED to a 9V supply a 330Ω resistor is used.

Explain why the resistor is required.



Answer: _____

_____

_____

_____

_____

_____

16. State **one** advantage and **one** disadvantage of using a chain drive in a mechanism.

Advantage: _____

_____

_____

_____

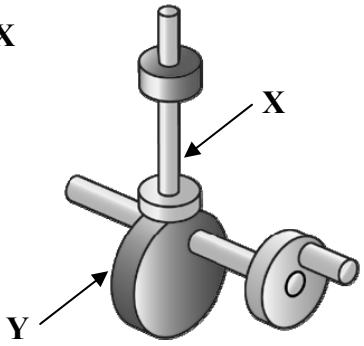
Disadvantage: _____

_____

_____

_____

17. Name the parts labelled **X** and **Y** of the mechanism shown.



X: _____

_____

Y: _____

_____

18. State the purpose of the bit shown.

Purpose: _____

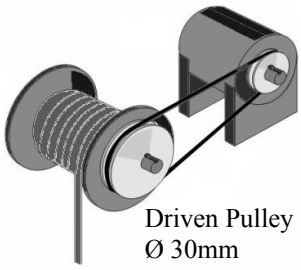
_____

_____

_____

19. Indicate clearly the location of the Load (**L**), Effort (**E**) and Fulcrum (**F**) on the nutcracker shown.

20. Calculate the speed of the driven pulley from the information given.



Speed (RPM): _____

_____

21. Outline **two** reasons why LED lights are replacing older light bulbs in homes.

(i): _____

(ii): _____

22. In relation to technology tasks, state **two** reasons why it is important to undertake '*Testing and Evaluation'* of the completed product.

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Technology

Design Tasks

(i): _____

(ii): _____

23. Explain why **two** motors are used in the toy hovercraft shown.

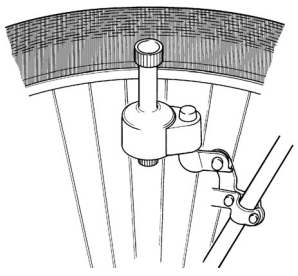
Answer: _____

24. State **one** advantage and **one** disadvantage of using electronic tablets in schools.

Advantage: _____

Disadvantage: _____

25. Name **two** energy conversions taking place in the bicycle dynamo (generator) shown.



(i): _____

(ii): _____

26. State **one** advantage and **one** disadvantage of the two-wheel barrow design shown, as compared with a single-wheel barrow.

Advantage: _____

_____

_____

_____

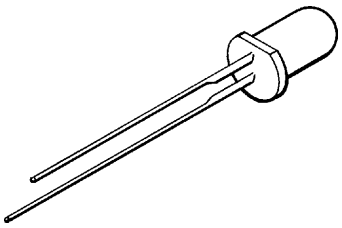
Disadvantage: _____

_____

_____

_____

27. Name the **two** features of an LED which identify the cathode (negative leg).



(i): _____

_____

_____

_____

(ii): _____

_____

_____

_____

28. Name **two** appliances found in the home that use wireless technology.

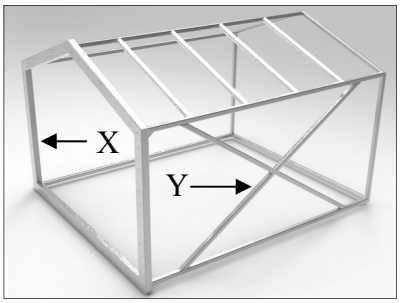
(i): _____

_____

(ii): _____

_____

29. Name the forces acting on the members labelled **X** and **Y**.



X: _____

Y: _____

30. Describe how the four 1.5V batteries should be connected to produce a total voltage of 6V.

Answer: _____

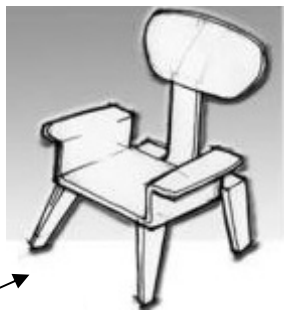
_____

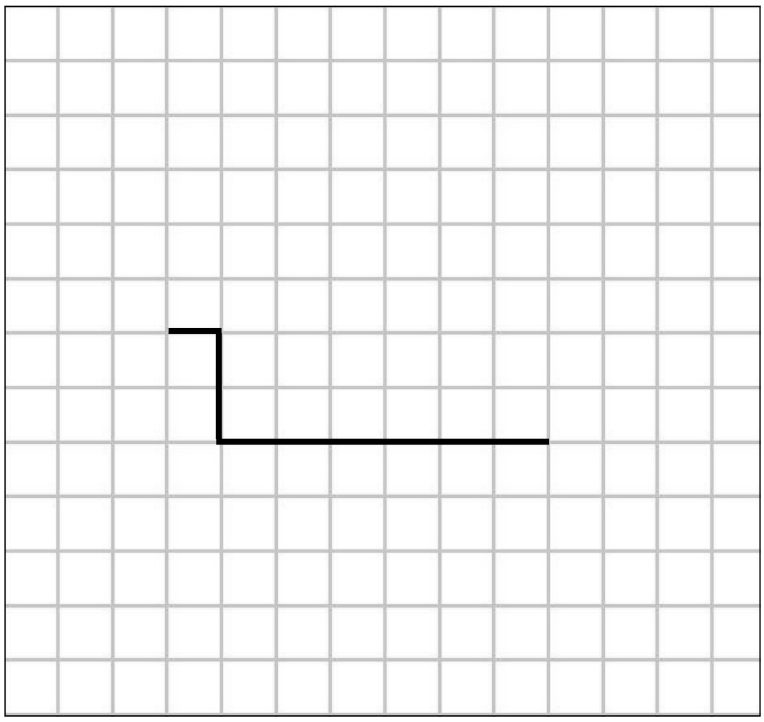
_____

_____

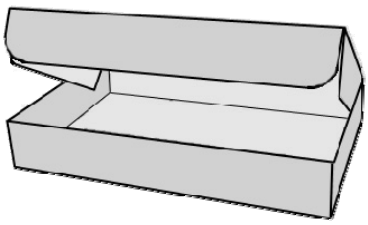
_____

31. An isometric sketch of a chair is shown.
On the grid provided, complete the front elevation of the chair when viewed in the direction of arrow **A**.





32. On the grid provided, complete the development of the food container shown.



Food container