Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination, 2014

Technology

Higher Level

Wednesday, 18 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

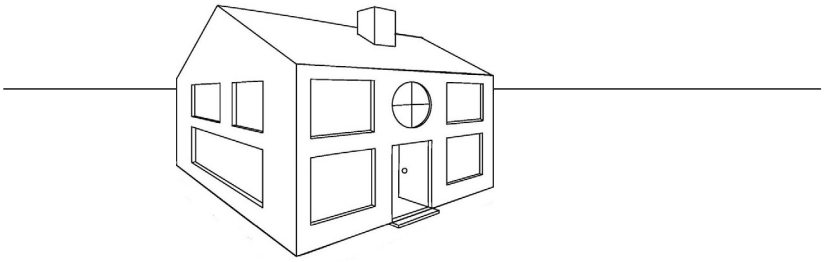
Examination Number

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. Indicate clearly the location of the **two** vanishing points for the perspective drawing shown.

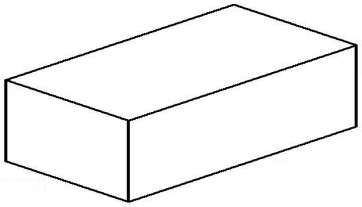


2. Use rendering techniques on the graphics shown to suggest that:

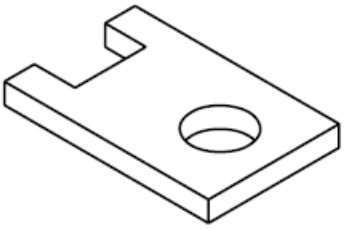
   A is made of wood

   and

   B is made of acrylic.



A



B

3. State **two** advantages of tablet devices.

(i): _____

_____

_____

_____

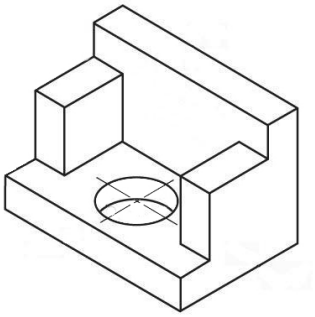
(ii): _____

_____

_____

_____

4. Show clearly **two** important dimensions on the drawing given.



5. State the meaning of **each** of the graphics shown.

(i)

(ii)

(i): _____

_____

_____

_____

(ii): _____

_____

_____

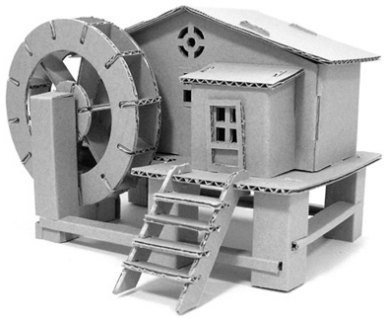
_____

6. Indicate clearly if each of the timbers listed are hardwoods *or* softwoods.

Wood	Hardwood	Softwood
Beech		
Oak		
Scots Pine		
Sycamore		

7. Designers commonly use cardboard to produce models of their ideas.

State **two** advantages of using cardboard to make the model shown.



(i): _____

_____

_____

_____

(ii): _____

_____

_____

_____

8. Name **each** of the saws shown

and

name a suitable material for cutting with each saw.

X: _____

_____

Material: _____

Y: _____

_____

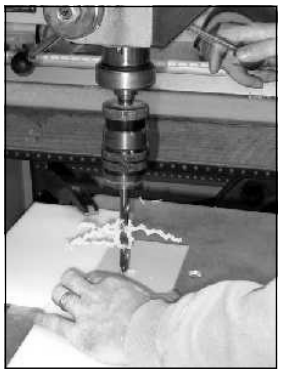
Material: _____

9. When drilling acrylic sheet, why is it important to:

(i) drill a pilot hole

and

(ii) place a piece of waste wood under the acrylic?



(i): _____

_____

_____

_____

(ii): _____

_____

_____

_____

10. Name a suitable material to make the body of the hair straightner shown

and

state **one** reason for using that material.

Hair straightener

Material: _____

_____

_____

Reason: _____

_____

_____

_____

11. Sketch the electronic symbol for the switch shown

and

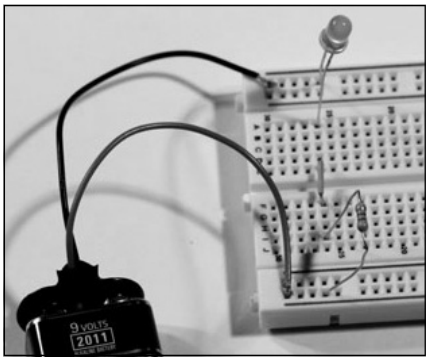
name the additional component required to operate this switch.

Symbol

Component: _____

12. When a working 9V battery is attached to the circuit shown, the LED does not light.

Suggest **two** reasons for this.



(i): _____

_____

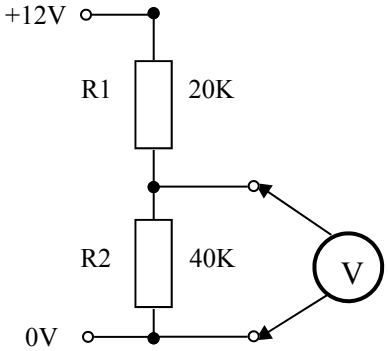
_____

(ii): _____

_____

_____

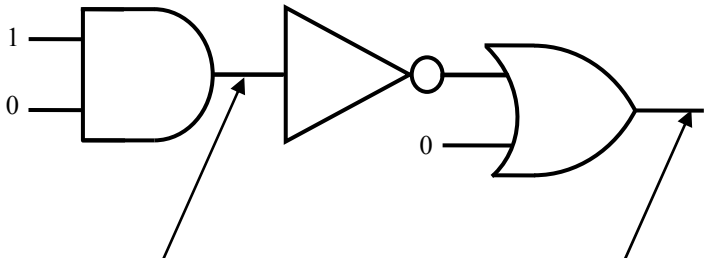
13. Calculate the voltage across resistor R2 in the circuit shown.



Voltage: _____

_____

14. Identify the logic states of the circuit at points X and Y.



X=

Y=

15. Electrical solder is an alloy. Name the **two** metals in electrical solder.

(i): _____

_____

_____

_____

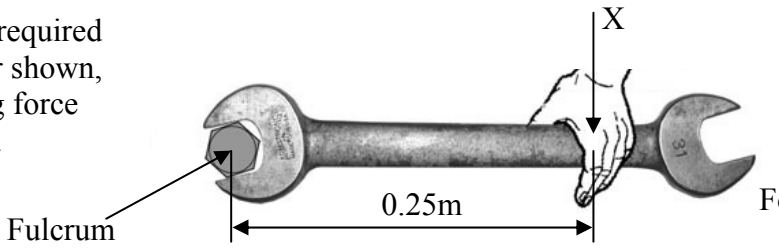
(ii): _____

_____

_____

_____

16. Calculate the force required at X, on the spanner shown, to produce a turning force (moment) of 15Nm.



Force: _____

_____

_____

17. State clearly, where on a bicycle it is important to:

(i) minimise friction

and

(ii) maximise friction.

Minimise: _____

_____

_____

Maximise: _____

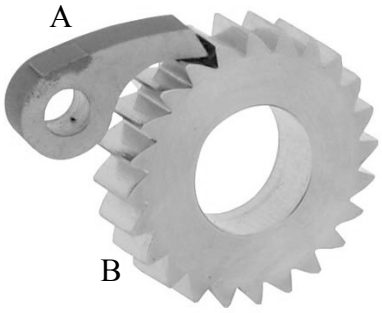
_____

_____

18. Name the parts of the gear system shown

and

state the function of part A.



A: _____

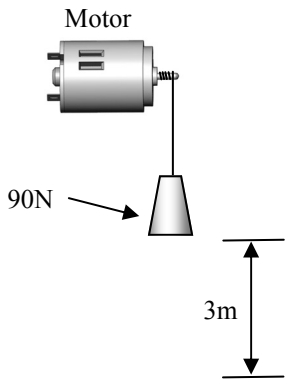
B: _____

Function of A: _____

_____

_____

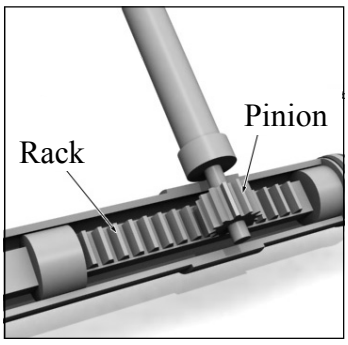
19. Calculate the work done to lift the 90N load by 3m in the system shown.



Work: _____

20. The gears shown are used in a car steering system.

Name **two** other areas where this gear system is used.



(i): _____

_____

_____

(ii): _____

_____

_____

21. Explain the term: 'biodegradable'

and

name **one** common biodegradable household material.

Biodegradable: _____

_____

_____

_____

Material: _____

_____

_____

_____

22. Name **two** properties of fabrics which make them suitable for use as sails on yachts.

(i): _____

_____

_____

_____

(ii): _____

_____

_____

_____

23. Explain the term 'smartphone' in relation to modern mobile phones.

Smartphone: _____

_____

_____

_____

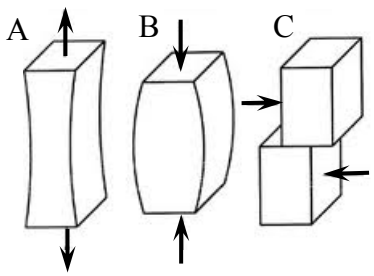
_____

_____

_____

_____

24. Name the forces operating at A, B and C.



A: _____

_____

B: _____

_____

C: _____

_____

25. Name **two** applications of pneumatics.

(i): _____

_____

_____

_____

(ii): _____

_____

_____

_____

26. Identify **two** safety features on the drill shown.

(i): _____

_____

_____

(ii): _____

_____

_____

27. Wind energy is a renewable form of energy.

    Name **two** other commercial renewable energies available in Ireland.

(i): _____

_____

_____

_____

(ii): _____

_____

_____

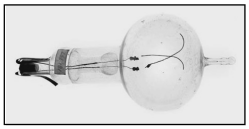
_____

28. Name the inventors of:

    (i) the practical electric light bulb

    and

    (ii) the first modern automobile.



(i): _____

_____

(ii): _____

_____

29. Name the structural feature which makes the tower-crane both strong and lightweight.

Answer: _____

_____

_____

30. Why have 'USB sticks' (flash drives) replaced 'floppy disks' for portable data storage?

Answer: _____

_____

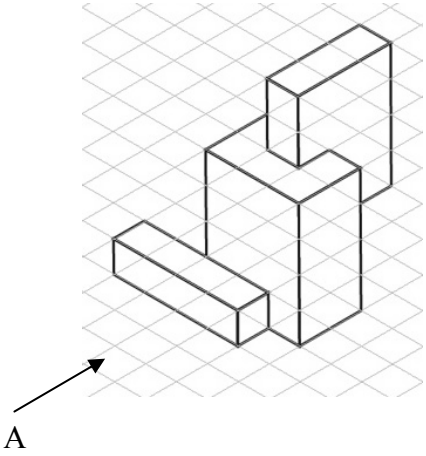
_____

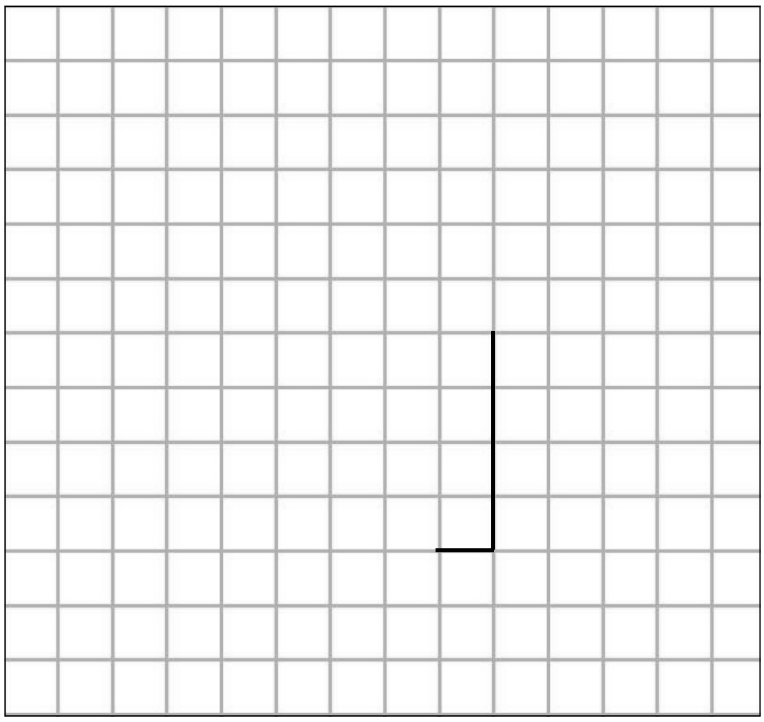
_____

_____

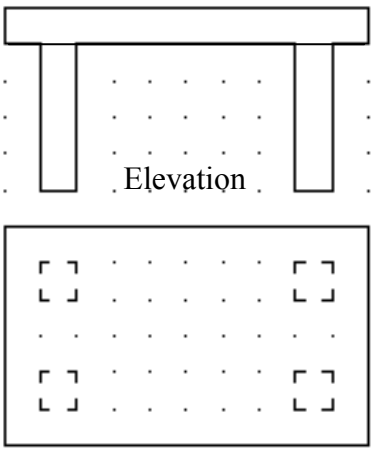
_____

31. An isometric view of an object is shown.
On the grid below, complete the front elevation of the object in the direction of arrow A.





32. An orthographic projection of a table is shown below.
Complete the isometric sketch of the table on the grid provided.



Plan