Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination, 2018

Technology

Higher Level

Wednesday, 20 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):	

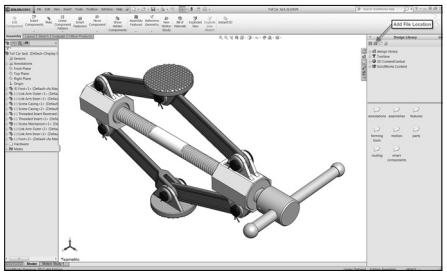
Centre Number

Examination Number

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

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

1. State **two** advantage of using CAD in design.



(i): _____

_____

_____

_____

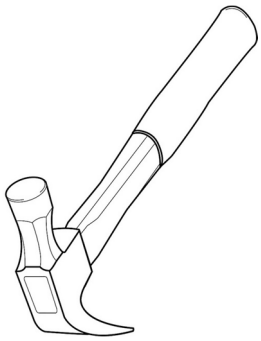
(ii): _____

_____

_____

_____

2. Use **two** rendering techniques to enhance the claw hammer shown.
The handle is made from wood, the head is made from metal and the grip is made from rubber.



3. Explain the following computer abbreviations.

(i) USB,

(ii) CPU.



USB: _____

_____

_____

_____

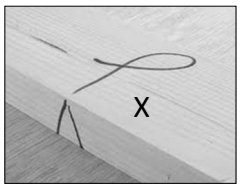
CPU: _____

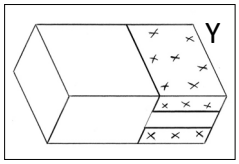
_____

_____

_____

4. Explain the markings at **X** and at **Y** on the wooden work pieces shown.





X : _____

_____

_____

_____

Y : _____

_____

_____

_____

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



(i)



(ii)

(i): _____

_____

_____

_____

(ii): _____

_____

_____

_____

6. State **two** reasons why manufactured boards are more widely used than native timbers, in furniture manufacture.



(i): _____

_____

_____

_____

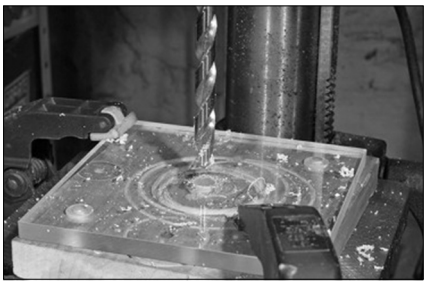
(ii): _____

_____

_____

_____

7. State **two** specific precautions which should be observed when drilling acrylic.



(i): _____

_____

_____

_____

(ii): _____

_____

_____

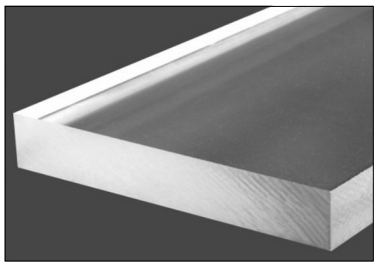
_____

8. Indicate clearly in the table shown, if each named material is natural or synthetic.



Material	Natural	Synthetic
Linen		
Rayon		
Acrylic		
Hemp		

9. Name **two** processes which should be used to finish the edges on an acrylic work piece.



Process 1: _____

_____

_____

_____

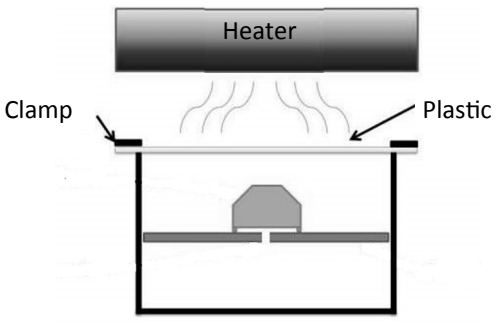
Process 2: _____

_____

_____

_____

10. Name the plastic-shaping process shown.

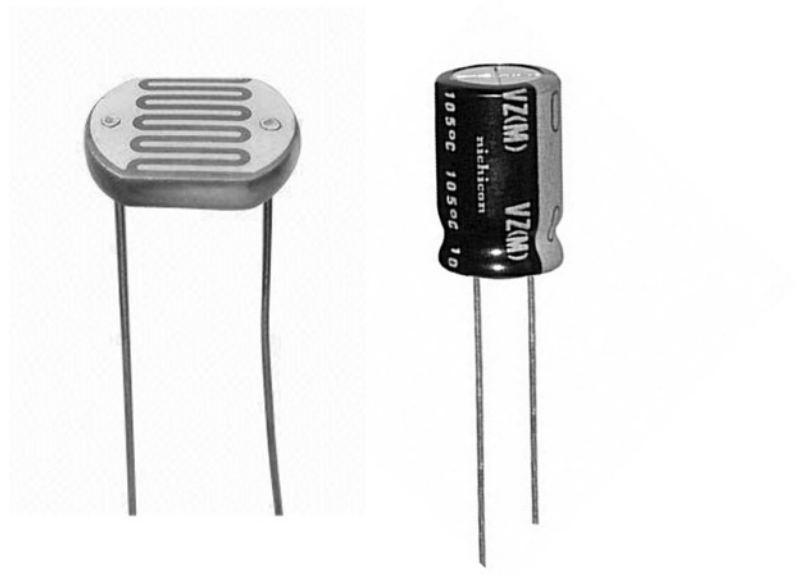


Process: _____

_____

_____

11. Name the electronic components shown.



(i) (ii)

(i): ______

(ii): ______

12. State the units used to measure:

(i) Power,

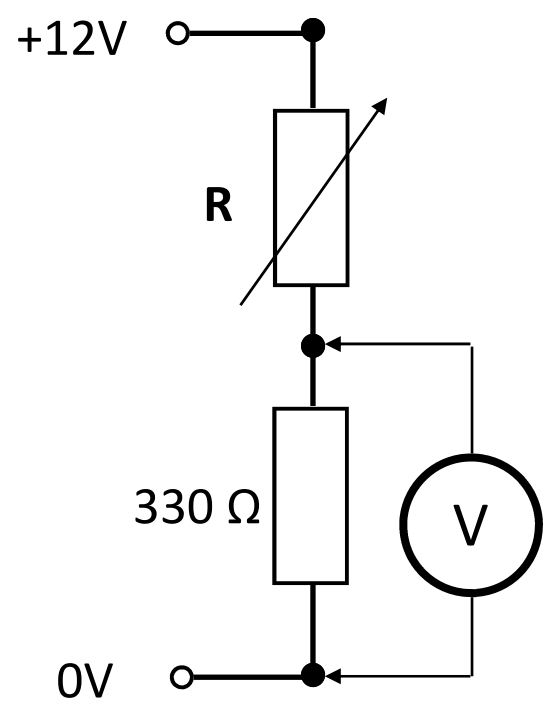
(ii) Current.



(i): ______

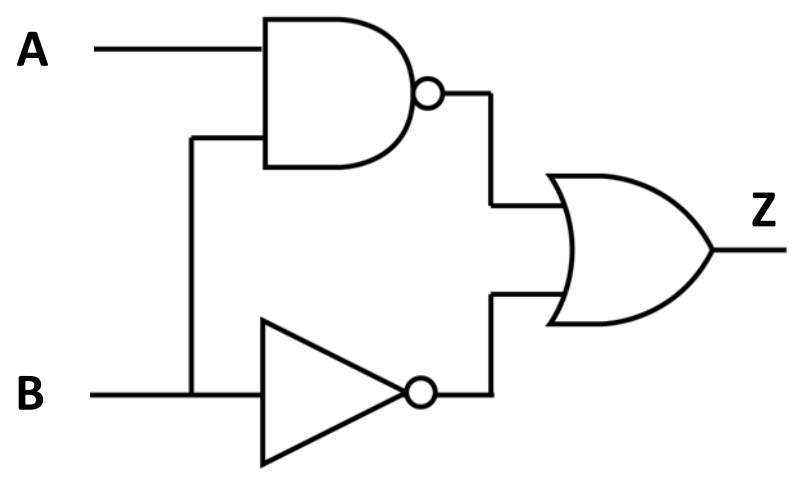
(ii): ______

13. Calculate the required value of R in the circuit shown to produce a value V = 3 V.



Answer: ______

14. Complete the truth table for the logic gate arrangement shown.



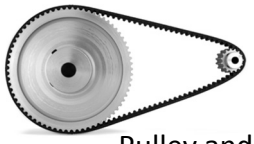
INPUT		OUTPUT
A	B	Z
		0

15. Electrical solder is an alloy. Explain the term **alloy**.

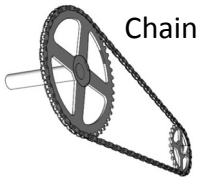


Alloy: ______

16. State **two** advantages of using the pulley and belt system shown instead of a chain drive.



Pulley and belt

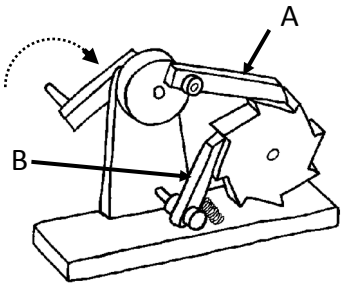


Chain drive

(i): _____

(ii): _____

17. State the purpose of each of the component parts labelled A and B in the mechanism shown.



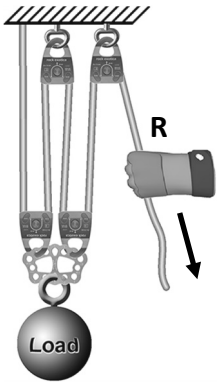
A: _____

B: _____

18. State the mechanical advantage of the block and tackle system shown,

and

calculate how far the rope **R** must travel to raise the load by 2 meters.



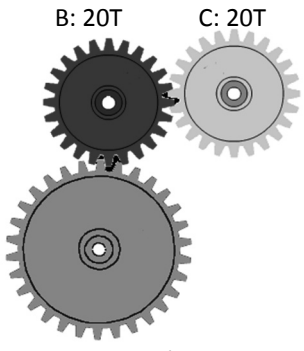
MA: _____

Distance: _____

19. In the gear train shown, state the purpose of gear **B**,

and

calculate the speed of rotation of gear **C**.



Gear B: _____

Gear C: _____

20. Name the gear shown,

and

Give a reason why the gears shown would be used in a gear train.



Name: _____

Reason: _____

21. State **two** precautions which should be taken to prevent 'malware' from infecting a computer.



(i): _____

(ii): _____

22. Name **two** ways in which technology has helped prolong the shelf life of food products.



(i): _____

(ii): _____

23. State **two** reasons why the mobile phone has commonly replaced the digital camera when taking photographs.





(i): _____

(ii): _____

24. The image shows a VR headset.

Explain the abbreviation VR,

and

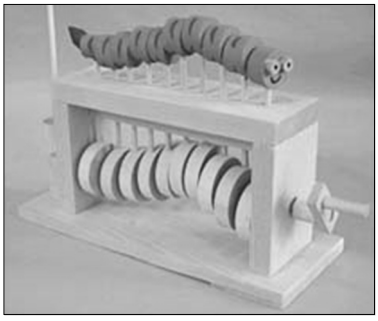
state **one** beneficial use of this technology.



VR: _____

Use: _____

25. Name the mechanism used to animate the toy caterpillar shown.



Mechanism: _____

26. State **two** advantages of using a smart watch over a traditional watch.



Advantage 1: _____

_____

_____

_____

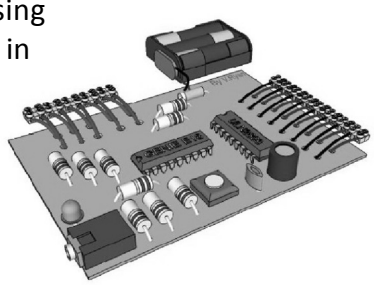
Advantage 2: _____

_____

_____

_____

27. State **one** advantage and **one** disadvantage of using a programmable board in producing a circuit for a student task.



Advantage: _____

_____

_____

_____

Disadvantage: _____

_____

_____

_____

28. From the list of hi-tech companies below, select the company associated with **each** named person.

Companies:

- Tesla
- Amazon
- Facebook
- Google



Mark Zukerberg: _____

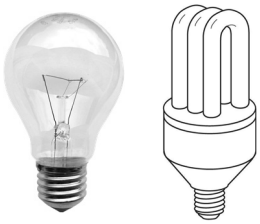
_____



Elon Musk: _____

_____

29. Give t**wo** reasons why people are encouraged to replace bulbs of type **A** with those of type **B**.



A B

Reason 1: _____

_____

_____

_____

Reason 2: _____

_____

_____

_____

30. When writing a student Task Portfolio state **two** reasons why at least two design ideas should be included.



Reason 1: _____

_____

_____

_____

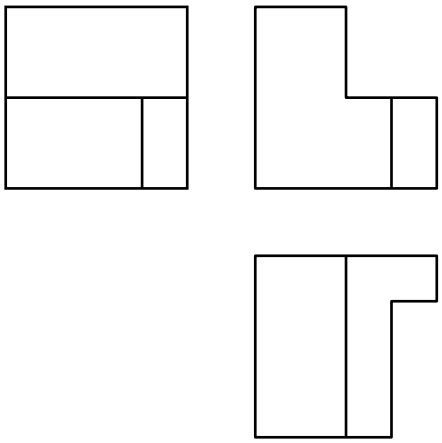
Reason 2: _____

_____

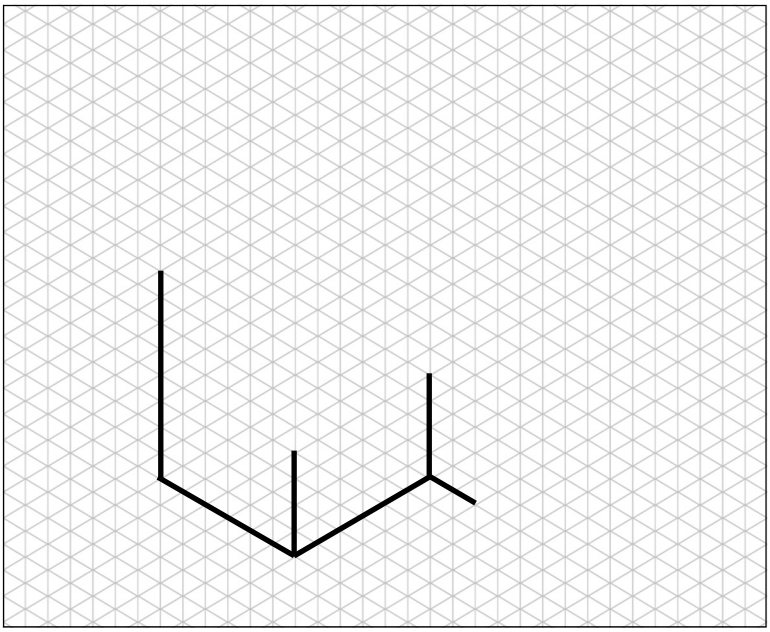
_____

_____

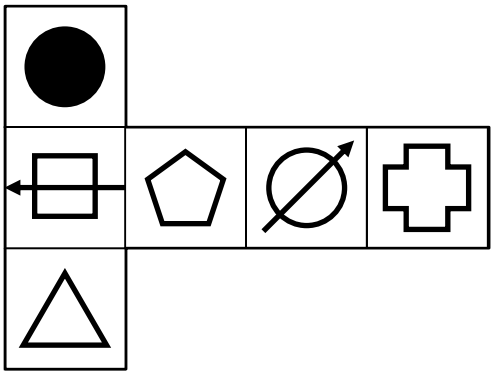
31. An orthographic projection of a component is shown.
On the grid provided, complete the isometric view of the component.



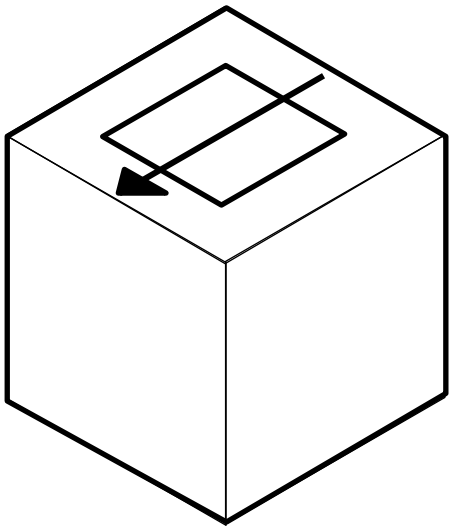
Orthographic projection



32. The sketch below shows a development of a cube.
Complete the isometric view of the same cube.



Development



Isometric View