Coimisiún na Scrúduithe Stáit
State Examinations Commission

Junior Certificate Examination, 2019

Technology

Higher Level

Tuesday, 11 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

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

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):			

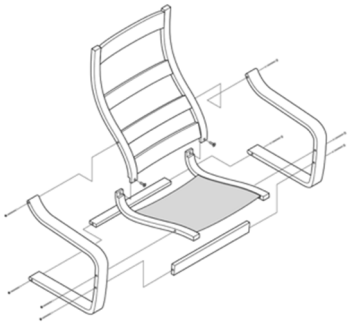
Section A Answer **any 25** questions from this section - all questions carry equal marks. **100 marks**

1. A view of a chair is shown.

   Name the type of view shown

   and

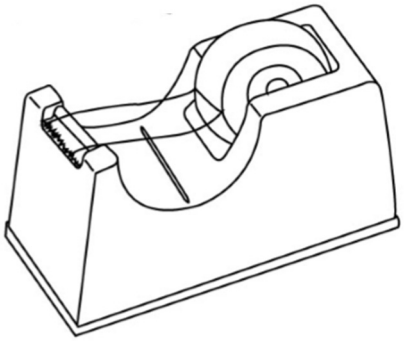
   state **one** advantage of this type of view.



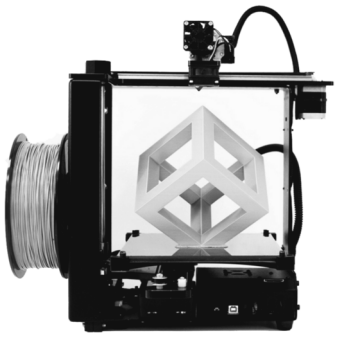
View: _____

Advantage: _____

2. Use **two** rendering techniques to enhance the view of the tape dispenser shown.



3. State **one** advantage and **one** disadvantage of using a 3D printer in school.



Advantage: _____

Disadvantage: _____

4. State **two** reasons why DVD drives are no longer built into modern laptop computers.



(i): _____

(ii): _____

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



(i)



(ii)

(i): _____

(ii): _____

6. Explain **each** of the following terms:

Thermoplastic,

and

Thermosetting plastic.



Thermoplastic: _____

_____

_____

_____

Thermosetting plastic: _____

_____

_____

_____

7. State the purpose of **each** type of nut shown.



(i)



(ii)

(i): _____

_____

_____

_____

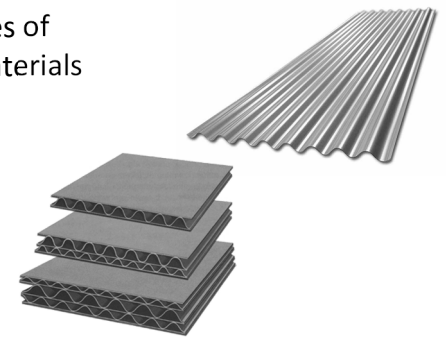
(ii): _____

_____

_____

_____

8. State **two** advantages of using corrugated materials in manufacturing.



Advantage 1: _____

_____

_____

_____

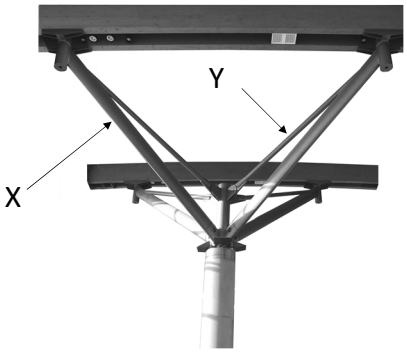
Advantage 2: _____

_____

_____

_____

9. Name the forces operating on member X and on member Y in the roof support structure shown.



X: _____

Y: _____

10. Name **each** of the tools shown

and

name a **material** which should be cut with each tool.

(i)



(ii)



Tool (i): _____

_____

Material: _____

_____

Tool (ii): _____

_____

Material: _____

_____

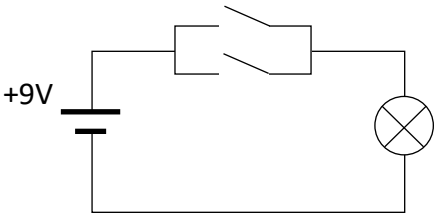
11. State the property of an LDR which changes with varying light levels.



LDR

Property: _____

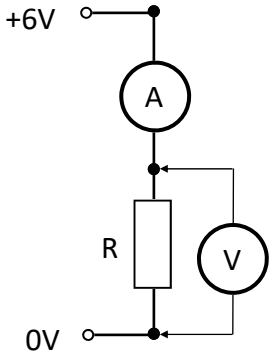
12. Name the logic gate represented by the circuit shown.



Logic Gate: _____

13. Calculate the resistance R in the circuit shown.

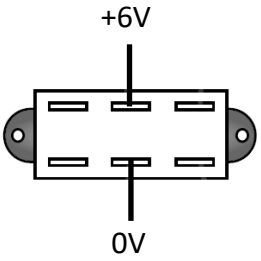
V = 6 V, A = 20 mA.



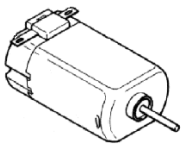
Calculation:

Resistance: _____

14. Indicate clearly, on the sketch shown, how to connect the switch and motor in order to allow the motor turn clockwise or anticlockwise.

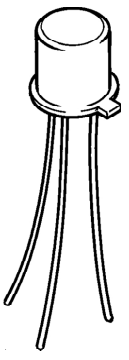


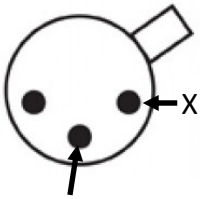
DPDT switch



DC motor

15. Name the legs of the transistor labelled X and Y on the pin view shown.





X: _____

Y: _____

16. State **two** advantages of using a toothed belt over a chain drive in an inkjet printer mechanism.



Advantage 1: _____

_____

_____

_____

Advantage 2: _____

_____

_____

_____

17. The location of the effort E is shown on the cross trainer. Show clearly the location of:

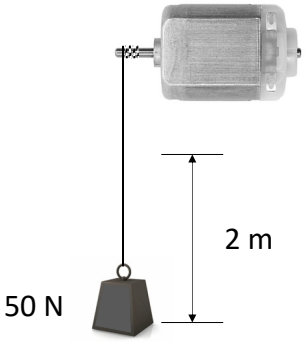
the load (**L**),

and

the fulcrum (**F**).



18. Calculate the work done to lift the 50 N load a distance of 2 m, by the system shown.

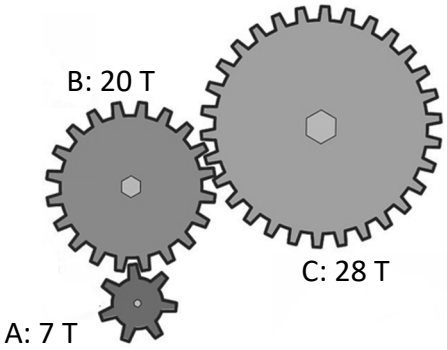


Calculation:

Work: _____

19. In a gear train, gear A rotates at 160 RPM.

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



Calculation:

Gear C: _____

20. Name **two** safety features on the pillar drill shown.



(i): _____

_____

_____

_____

(ii): _____

_____

_____

_____

21. State **two** reasons why additives are used in processed foods.



Reason 1: _____

_____

_____

_____

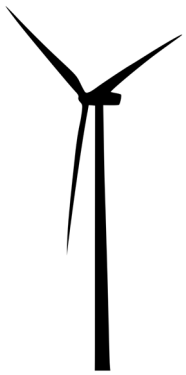
Reason 2: _____

_____

_____

_____

22. Name **two** energy conversions taking place in a working wind turbine.



Energy Conversion 1	From: _____ To: _____
Energy Conversion 2	From: _____ To: _____

23. Smart watches are an example of wearable technology.

    State **two** benefits of this type of technology.



Benefit 1: _____

_____

_____

_____

Benefit 2: _____

_____

_____

_____

24. Name **and** sketch a structural feature which makes a Ferris wheel both strong and lightweight.



Name: _____

Sketch

25. Smart phones contain a number of sensors, including: gyroscopes, accelerometers and biometric sensors.

    State the purpose of any **one** of these sensors in a smart phone.



Sensor: _____

_____

Purpose: _____

_____

_____

_____

26. State **two** reasons why a power adaptor is required for portable electronic devices.



(i): _____

_____

_____

_____

(ii): _____

_____

_____

_____

27. State **two** important features which should be considered when designing a running shoe.



(i): _____

_____

_____

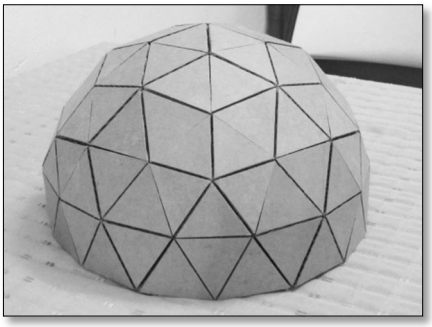
_____

(ii): _____

_____

_____

28. State **two** reasons for making a model as part of a design process.



(i): _____

_____

_____

_____

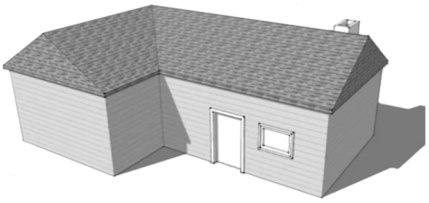
(ii): _____

_____

_____

_____

29. State t**wo** ways in which a home could be made more energy efficient.



(i): _____

_____

_____

_____

(ii): _____

_____

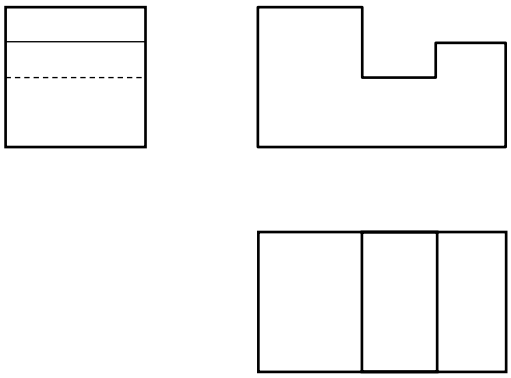
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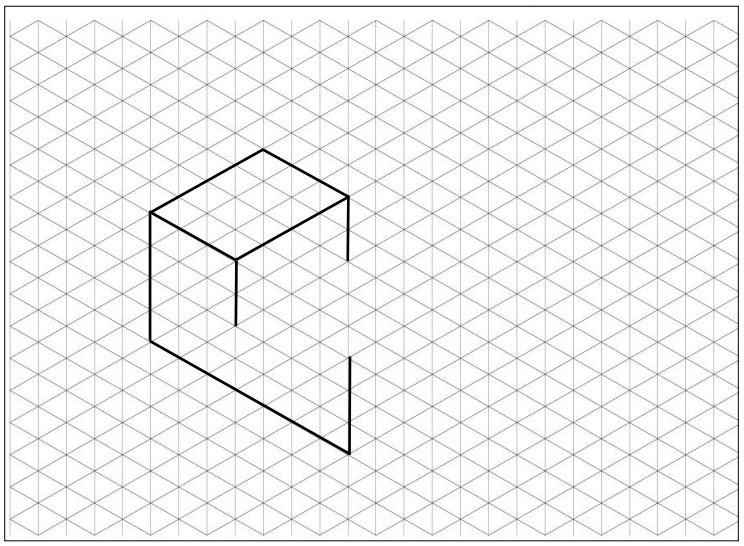
30. Indicate clearly on the sketch shown, how the four 1.5 V cells should be connected to produce 6 V.



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



Orthographic projection



32. Complete the development of the polypropylene storage box shown.

