



**Coimisiún na Scrúduithe Stáit**  
**State Examinations Commission**

*Junior Certificate Examination, 2017*

# **Technology**

## **Higher Level**

**Wednesday, 21 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)		<b>Total 1:</b>	
Disallowed		Mark	Total
	x	4	
	x	3	
	x	2	
	x	1	
Total (max 7)		<b>Total 2:</b>	
<b>Section A Total (1-2):</b>			

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

1. A view of a mobile phone is shown.

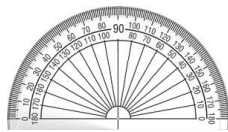


Name the type of view shown and state **one** advantage of this type of view.

View: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Advantage: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Name the **two** drawing instruments shown.



(i)



(ii)

(i): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

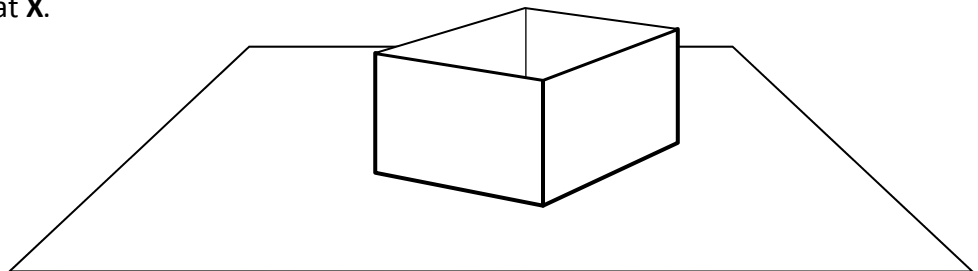
(ii): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. State **one** way in which data on a computer can be protected from unauthorised access.



Answer: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

4. Shade the open container shown to suggest a light source at X.



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



(i)

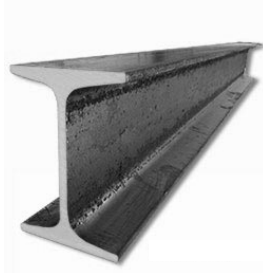


(ii)

(i): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

(ii): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

6. State **two** advantages of using steel beams, with the profile shown, when constructing buildings.



(i): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
  
(ii): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

7. State **one** advantage and **one** disadvantage of using MDF in constructing a project.



Advantage: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
  
Disadvantage: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

8. State **two** properties of a material suitable for the manufacture of the handle shown.



(i): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
  
(ii): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

9. Name **one** modern material used in sports car design  
  
*and*  
  
state why this material is used.



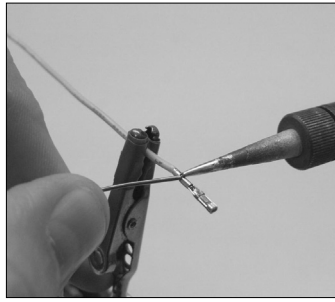
Material: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
  
Reason: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. Name the process used to manufacture the safety helmet shown from a single piece of plastic.



Process: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

11. State **two** specific safety precautions which should be observed when soldering electronic components.

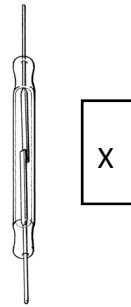


(i): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

(ii): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

12. The switch shown can be activated by component X.

Name component X.

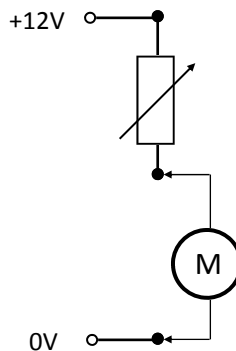


X: \_\_\_\_\_  
 \_\_\_\_\_

13. In the circuit shown, state what is being measured by the meter M

and

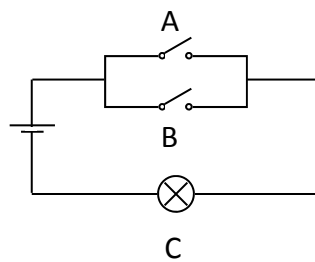
name the units used in this measurement.



Answer: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

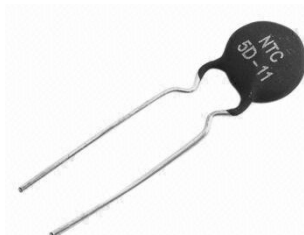
Units: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

14. Complete the truth table for the circuit shown.



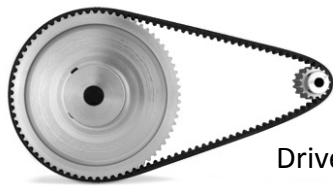
INPUT		OUTPUT
A	B	C
Open	Open	
Open	Closed	
Closed	Open	
Closed	Closed	

15. What property of a thermistor changes with changing temperature?



Property: \_\_\_\_\_  
 \_\_\_\_\_

16. In the system shown, if the driver is rotating at 100 RPM, calculate the speed of the driven wheel.

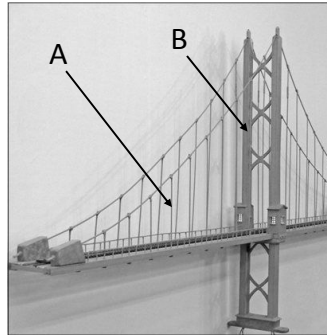


Driver 60 T

Driven 15 T

Answer: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

17. Name the forces experienced by the cable (A) and by the tower (B) in the suspension bridge shown.



A: \_\_\_\_\_  
\_\_\_\_\_  
B: \_\_\_\_\_  
\_\_\_\_\_

18. Name the tool shown

*and*

state the function of this tool.



Name: \_\_\_\_\_  
\_\_\_\_\_  
Function: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

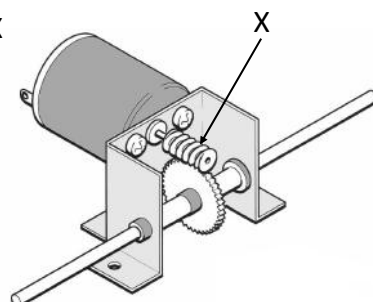
19. Indicate clearly on the tweezers shown the location of the fulcrum (F) and the effort (E).



20. Name the gear shown at X

*and*

state **one** advantage of using this gear in this situation.



X: \_\_\_\_\_  
\_\_\_\_\_  
Advantage: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

21. Give **two** reasons why plastics should be recycled.



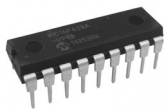
(i): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
(ii): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

22. Name **two** energy conversions taking place when a drone is in flight.



(i) From: \_\_\_\_\_  
To: \_\_\_\_\_  
(ii) From: \_\_\_\_\_  
To: \_\_\_\_\_

23. State **two** uses for an integrated chip (IC) in modern toys.



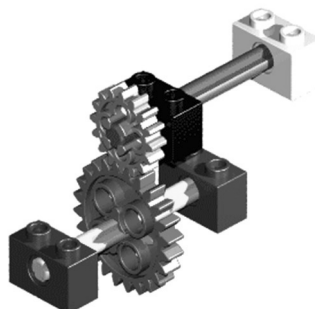
(i): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
(ii): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

24. State **two** ways in which smart TVs have changed the way in which we watch television.



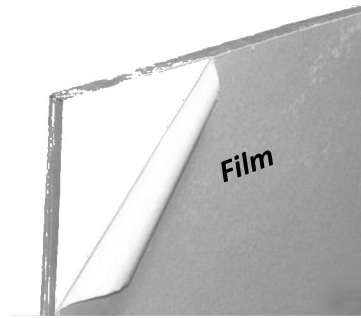
(i): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
(ii): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

25. State **two** reasons why plastic is used to manufacture components in the system shown.



(i): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
(ii): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

26. State the purpose of the film on the acrylic sheet shown.



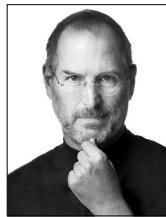
Purpose: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

27. State **one** advantage and **one** disadvantage of using a hot melt glue gun to join acrylic sheets.



Advantage: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 Disadvantage: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

28. Name the technology company most associated with each of the people shown.



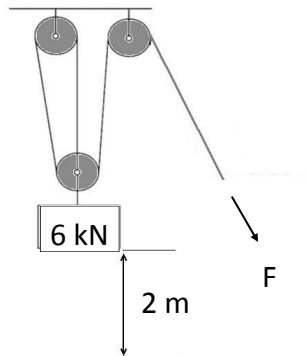
Steve Jobs



Bill Gates

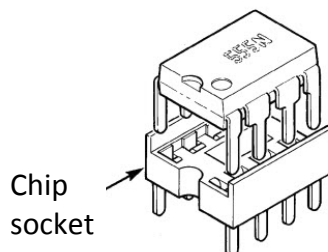
Steve Jobs: \_\_\_\_\_  
 \_\_\_\_\_  
 Bill Gates: \_\_\_\_\_  
 \_\_\_\_\_

29. Calculate the force  $F$  required to lift the 6 kN load a height of 2 m using the pulley system shown.



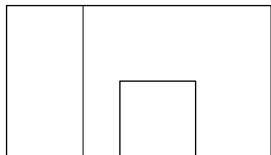
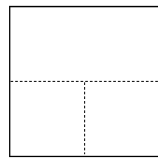
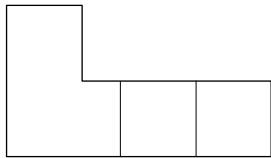
$F$ : \_\_\_\_\_  
 \_\_\_\_\_

30. State **one** reason why a chip socket should be used when attaching a chip to a circuit board.

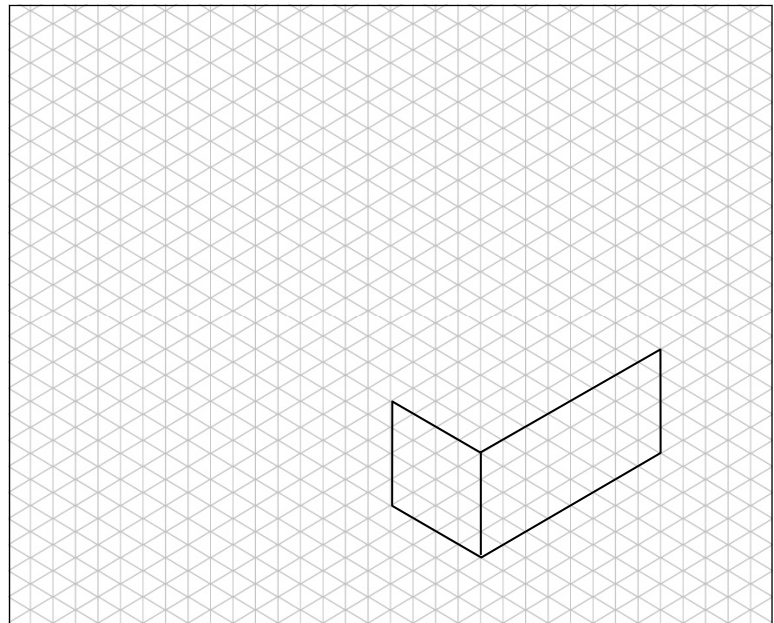


Reason: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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



Orthographic projection



32. Insert **four** main dimensions on the sketch of the drill vice shown.

