



*Coimisiún na Scrúduithe Stáit*  
State Examinations Commission

*Junior Certificate Examination, 2016*

# *Technology*

## *Higher Level*

*Wednesday, 22 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.*

<b>SECTION A</b>		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. State the meaning of each of the graphics shown.



(i)



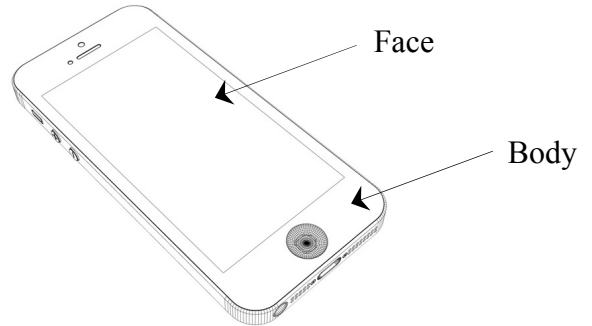
(ii)

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

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

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

- (a) the face is made of glass,
- and*
- (b) the body is made of wood.



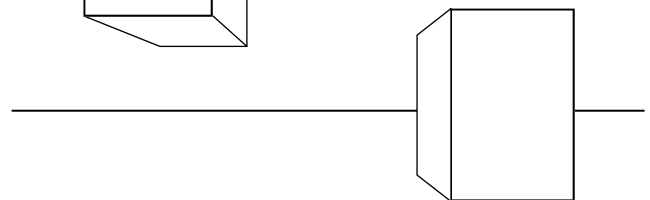
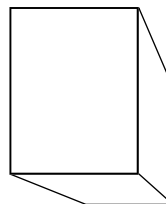
3. State **two** advantages of using a QR code as shown.



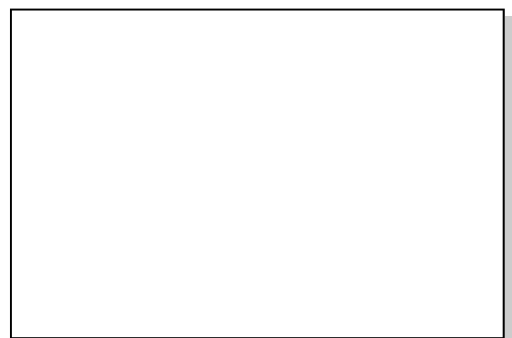
(i): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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

4. Shown is a single-point perspective. Locate the vanishing point.



5. Sketch a development of the light shade shown, which is in the shape of a cone.



6. State **two** properties of carbon fibre that make it suitable for the manufacture of bicycle frames.



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

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

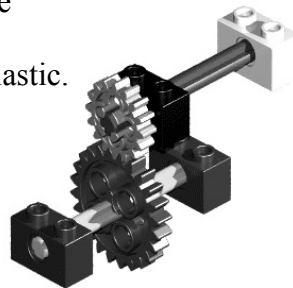
7. State **two** properties of solder that make it suitable for joining electrical components.



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

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

8. Indicate clearly on the table shown whether each of the named materials is thermosetting or thermoplastic.



Plastic	Thermosetting	Thermoplastic
Acrylic		
Nylon		
Bakelite		
Polystyrene		

9. State **two** reasons why a finish should be applied to wooden products.



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

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

10. Name **two** properties of synthetic fabrics which make them suitable for use in sports wear.



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

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

11. In relation to the switch shown, explain the terms:

NO and COM.



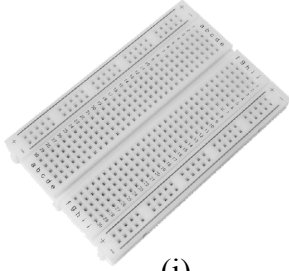
NO: \_\_\_\_\_

\_\_\_\_\_

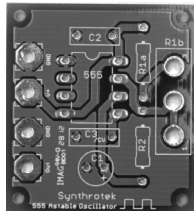
COM: \_\_\_\_\_

\_\_\_\_\_

12. Name the **two** types of electronic board shown.



(i)



(ii)

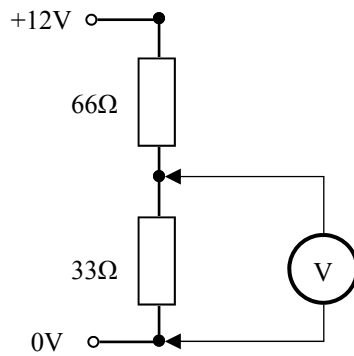
(i): \_\_\_\_\_

\_\_\_\_\_

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

\_\_\_\_\_

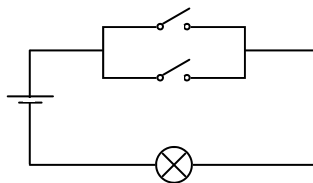
13. Calculate the value of **V** in the circuit shown.



Voltage (V): \_\_\_\_\_

\_\_\_\_\_

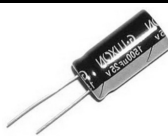

14. Name the logic gate represented by the circuit shown.



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

\_\_\_\_\_

15. Sketch the symbol for **each** electronic component shown.

Component	Symbol
	
	

16. Name the gear system used on the drill chuck and key shown.

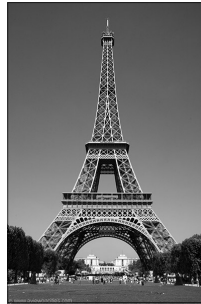


Gear system: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

17. Name the types of structure shown at (i) and at (ii).



(i)



(ii)

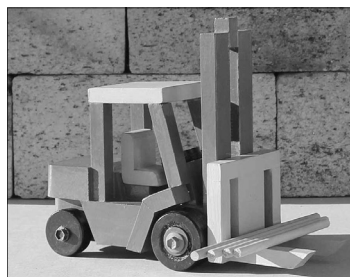
(i): \_\_\_\_\_  
\_\_\_\_\_  
(ii): \_\_\_\_\_  
\_\_\_\_\_

18. Give **two** reasons why toothed belts are used instead of chains in printers.



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

19. Give a reason why a chain and sprocket system instead of a pulley system is used in a forklift.



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

20. Name the types of saw shown at (i) and at (ii).



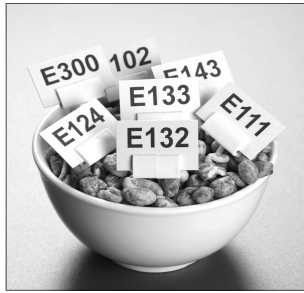
(i)



(ii)

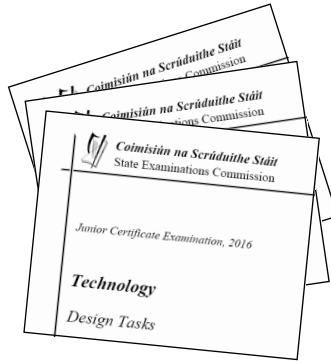
(i): \_\_\_\_\_  
\_\_\_\_\_  
(ii): \_\_\_\_\_  
\_\_\_\_\_

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



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

22. In relation to the technology task folder, give **two** reasons why it is important to sketch a number of solutions to your chosen task.



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

23. State the purpose of the button shown, commonly found in technology workshops.



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

24. Give **two** practical uses of voice recognition technology.



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

25. Name **two** types of pollution caused by jet aircraft.

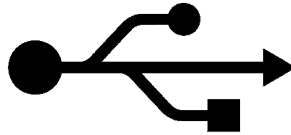


(i): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
(ii): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

26. Name the technology represented by the icon shown

and

state **one** use of that technology.



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

\_\_\_\_\_  
\_\_\_\_\_

Use: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

27. Give **two** important features which must be considered when designing food packaging.



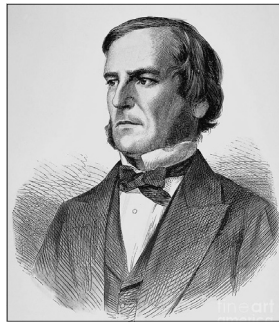
(i): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

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

\_\_\_\_\_  
\_\_\_\_\_

28. Name the professor of mathematics at Queen's University, Cork (now UCC) whose work paved the way for digital computing and modern electronic devices.

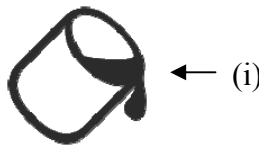


1815 - 1864

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

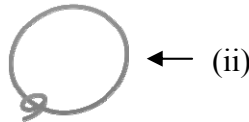
\_\_\_\_\_

29. State the function of each of the symbols labelled (i) and (ii) shown, found in the menu of a graphics application.



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

\_\_\_\_\_



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

\_\_\_\_\_

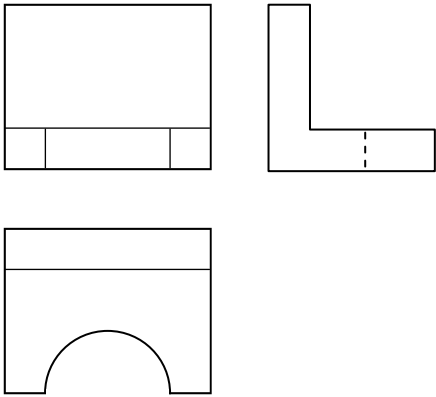
30. State **one** reason why wind generators are not 100% efficient in converting wind energy to electrical energy.



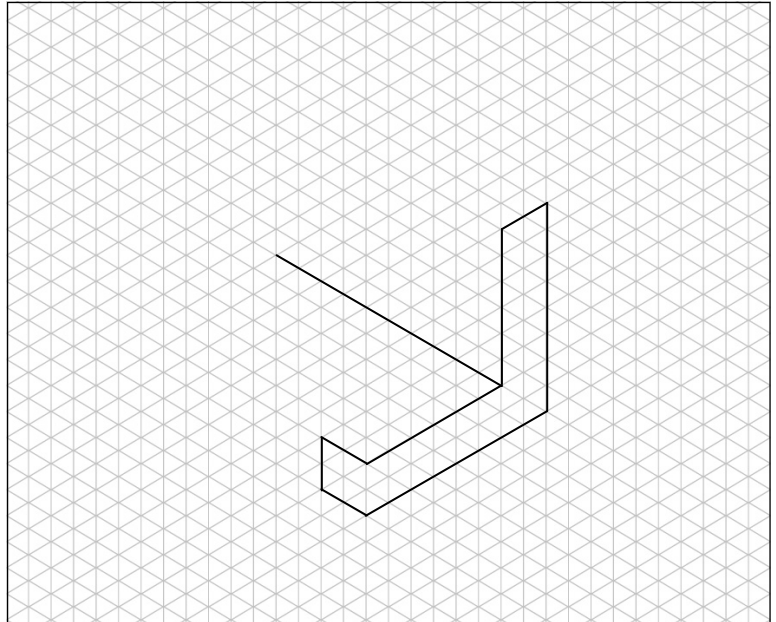
Reason: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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** key dimensions on the sketch provided.

