

Answer ALL questions in Section A and Section B.

SECTION A

Answer ALL questions in this section. Write your answers in the spaces provided.

1. All of the products listed below belong to a manufacturing sector.
- (a) Tick the **two** boxes below where the products belong to the **electrical and electronics** sector.

Products	Tick two boxes below
High-visibility vest	
Flat screen TV	
Icing sugar	
Metal door lock	
Fridge	
Fire extinguisher	

(2)

- (b) Tick the **two** boxes below where the products belong to the **computer** sector.

Products	Tick two boxes below
Wheel bearing	
Microprocessor	
Driving gloves	
Road atlas	
Dishwasher	
Mouse	

(2)

Q1



(Total 4 marks)



2. The tables below show some components used in the manufacture of products.

(a) Complete Table 1 by naming each component.

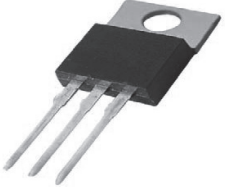

Table 1

Component	Component name	Use
		An electronic device that restricts current flow to one direction commonly used in rectification circuits.
		A machine that converts electricity into a mechanical motion.

(2)

(b) Complete Table 2 by explaining the use of each component.

Table 2

Component	Component name	Use
	Transistor	
	DC electronic buzzer	

(4)

Q2

(Total 6 marks)



Leave blank

3. Draw a straight line to link each term listed below to the correct key area.

Each key area can be used more than once.

Term

Key Area

Continuous operation

(1)

Information and communications technology (ICT)

Computer-aided design (CAD)

(1)

Databases

(1)

Control technology

Polymers

(1)

Automation

(1)

Modern materials

Liquid crystals

(1)

Q3

(Total 6 marks)



4. Liquid crystal display (LCD) alarm clocks belong to the electrical and electronics sector.

(a) (i) Name **one** other product from this sector, apart from an LCD alarm clock, that utilises in its manufacture information and communication technology and a modern material.

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(1)

(ii) Explain the purpose of the product.

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.....
.....
(2)

(b) (i) Name **one** stage in the manufacture of the product you gave in 4(a)(i) where information and communications technology is used.

.....
(1)

(ii) Explain **one** advantage to the **manufacturer** of using information and communications technology at this stage.

.....
.....
.....
(2)

(c) (i) State **one** modern material used in the manufacture of the product you named in 4(a)(i).

.....
(1)

(ii) Describe how this modern material improves the design of the product.

.....
.....
.....
.....
(2)

(Total 9 marks)

Q4



Leave
blank

5. (a) Explain **three** benefits to a **manufacturer** of using computer-aided manufacture (CAM).

1

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2

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3

.....

(6)

(b) Explain how the use of CAM in product manufacture encourages the **consumer** to buy the product.

.....

.....

.....

(2)

Q5

(Total 8 marks)



Leave
blank

6. In the electrical and electronics industries, communications technology is used to transfer information between suppliers, manufacturers and retailers.

(a) (i) State **one** type of communications technology used to transfer information between suppliers and manufacturers.

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(1)

(ii) Describe how the use of this communications technology benefits the **manufacturer**.

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.....
.....
(2)

(b) (i) Describe **one** way in which communications technology is used to transfer sales information from electrical and electronics product retailers to manufacturers.

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.....
(2)

(ii) Explain how the use of this communications technology benefits the **retailer**.

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.....
(3)

(Total 8 marks)

Q6



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7. (a) Explain **one** advantage, other than a financial benefit, of introducing automation to the production stage in electrical and electronics product manufacture.

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.....

(2)

(b) Explain **one** disadvantage of introducing automation to the production stage in electrical and electronics product manufacture.

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(2)

(Total 4 marks)

Q7

TOTAL FOR SECTION A: 45 MARKS



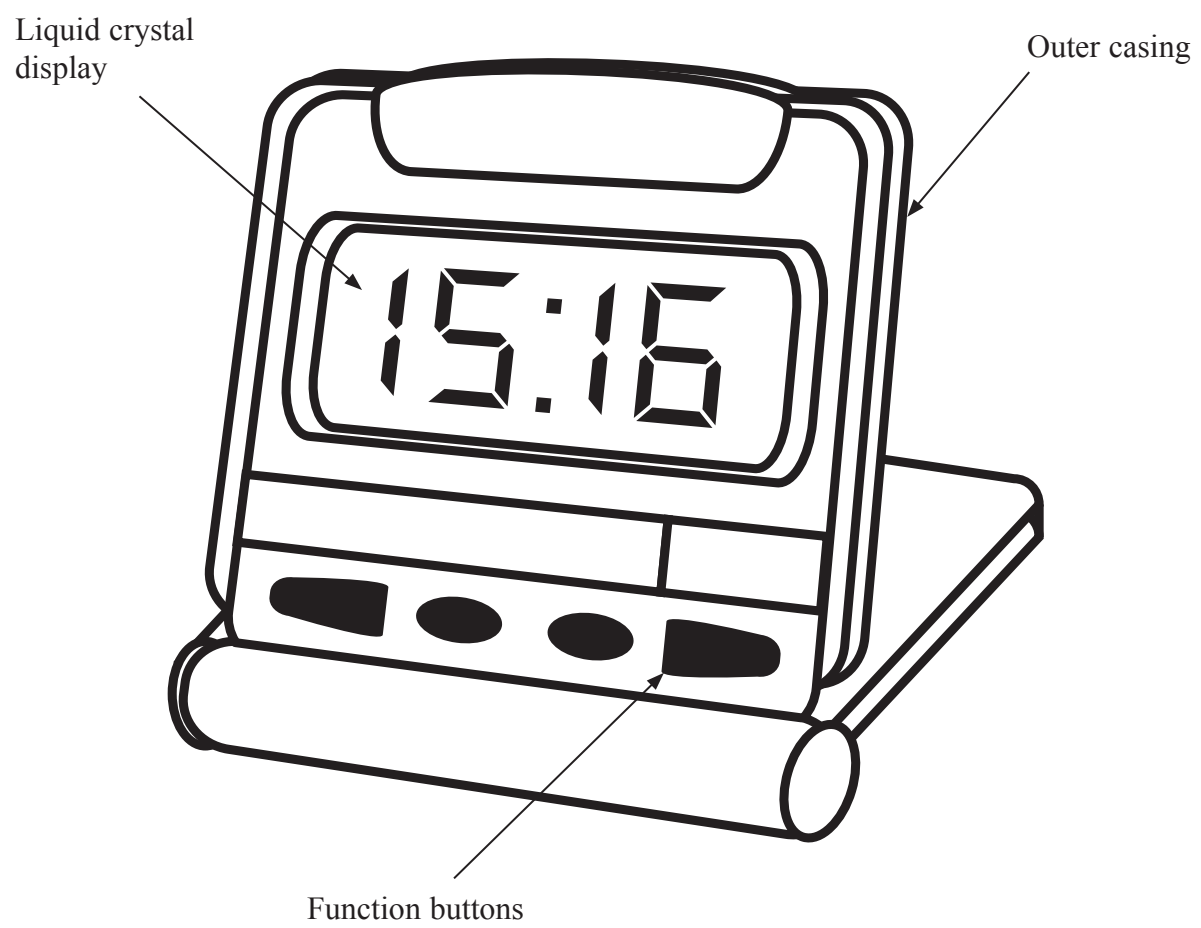
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TURN OVER FOR SECTION B



SECTION B

Answer ALL questions in this section with reference to the manufacture of mass produced liquid crystal display (LCD) alarm clocks. Write your answers in the spaces provided.

The diagram below shows an LCD alarm clock.



Leave
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8. In the boxes below, describe, using notes and sketches:

(a) the function of the liquid crystal display

Liquid crystal display

(3)

(b) the function of the outer casing.

Outer casing

(3)

(Total 6 marks)

Q8

11

Turn over



9. (a) The following table indicates some of the main stages in manufacturing LCD alarm clocks.

(i) Complete the table below by giving the **two** missing stages in manufacturing LCD alarm clocks.

(2)

Stages in manufacturing	
1	Design
2	
3	
4	Material supply and control
5	Production
6	Assembly
7	Packaging and dispatch

(ii) State the stage where the injection moulding of the outer casing would be carried out.

Stage

(1)

(b) Describe the following **two** stages in the manufacture of LCD alarm clocks.

(i) Assembly

.....
.....
.....
.....

(3)

(ii) Packaging and dispatch

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.....
.....

(3)

(Total 9 marks)

Q9



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10. (a) Name the specific material commonly used in manufacturing each of the following parts of the LCD alarm clock:

(i) the function buttons

.....
(1)

(ii) the outer casing

.....
(1)

(iii) the printed circuit board.

.....
(1)

(b) Injection moulding is a production process and is used in the manufacture of LCD alarm clocks.

(i) State **two** production processes, other than injection moulding, used during the manufacture of LCD alarm clocks.

1

2

(2)

(ii) Explain why injection moulding is used.

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(2)

(c) Explain how the use of modern materials has helped the **manufacturer** of LCD alarm clocks to develop new products.

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(3)

(Total 10 marks)

Q10

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11. (a) (i) Give **one** application of quality control during the **production or assembly stage** of the manufacture of LCD alarm clocks.

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(1)

(ii) Describe how quality could be checked in this application.

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(2)

(iii) Explain the benefits to the LCD alarm clock user of the use of quality control.

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(3)

(b) (i) Apart from quality control, state **one type** of computer control in the **production or assembly stage** of the manufacture of LCD alarm clocks.

.....
(1)

(ii) Describe the use of this type of computer control.

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.....
(2)

(c) Explain the benefits to the **manufacturer** of the use of computer control.

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.....
.....
(3)

(Total 12 marks)

Q11



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12. Information and communications technology (ICT) plays an important role in the manufacture and sales of LCD alarm clocks.

(a) (i) State **two** uses of ICT in the marketing stage.

1

2

(2)

(ii) Describe **one** use of ICT in the packaging and dispatch stage.

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.....

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(2)

(b) Explain **one** benefit of the use of ICT to the distributor of LCD alarm clocks.

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(2)

(c) Explain the impact ICT has on the design, development and production of LCD alarm clocks.

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(4)

(Total 10 marks)

Q12

TURN OVER FOR QUESTION 13



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13. Automation is often introduced within the manufacture of LCD alarm clocks.

(a) Explain how the introduction of automation has impacted on product cost and the opportunity to introduce new product designs

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(4)

(b) Evaluate the effect of the use of automation on the workforce and the working environment.

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(4)

Q13

(Total 8 marks)

**TOTAL FOR SECTION B: 55 MARKS
TOTAL FOR PAPER: 100 MARKS**

END

