



**GENERAL CERTIFICATE OF SECONDARY EDUCATION
MANUFACTURING**

B234

Impact of Modern Technologies on Manufacturing

Candidates answer on the Question Paper

OCR Supplied Materials:
None

Other Materials Required:
None

**Monday 1 February 2010
Morning**

Duration: 1 hour



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is **60**.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (*).
- This document consists of **12** pages. Any blank pages are indicated.

1 (a) Manufacturing sectors produce different products.

Complete the links below to identify which manufacturing sector makes the product listed.

Manufacturing Sector	Product
Chemical and pharmaceutical	Outdoor seat
Clothing and textiles	Petroleum Jelly
Electronic and communications	Pressure washer
Food and drink	Pro-biotic yogurt
Furniture	Sails
Machinery and equipment	Seat belts
Motor manufacturing	Sat-nav system
Paper and print	Wallpaper

[8]

(b) For **two** of the sectors shown above, complete the table to give **two** different **components** used in those sectors.

Manufacturing Sector	Component
	[1]
	[1]
	[1]
	[1]

2 (a) Select **two** of the products from the list below and state:

- **one** material used in each chosen product
- **one** benefit of using each material

Pro-biotic yogurt
Petroleum Jelly
Sails
Sat-nav system
Pressure washer

Orange juice carton
Outdoor seat
Wallpaper
Car windscreen
Electric fire

Product 1

Material [1]

Benefit [1]

Product 2

Material [1]

Benefit [1]

(b) Explain how modern technology is used when manufacturing **one** of your selected products.

.....

.....

.....

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.....

.....

..... [3]

3 Manufacturing processes can produce scrap and waste material.

(a) Give **one** example of a recyclable material and describe how it is recycled.

Material [1]

How it is recycled

.....

.....

..... [2]

(b) Explain why some materials are not always recycled.

.....

.....

.....

.....

..... [3]

5 One factor in Design for Manufacturing Assembly (DFMA) is 'make versus buy'.

(a) (i) Give **two environmental** factors to consider when deciding whether to buy in pre-processed materials or to process them on site.

1
.....
..... [2]

2
.....
..... [2]

(ii) Give **one different** factor to consider when deciding whether to buy in pre-processed materials rather than to process them on site.

.....
.....
..... [2]

Another factor in DFMA is 'Complexity Reduction'.

(b) Explain what is meant by 'Complexity Reduction' in DFMA.

.....
.....
.....
.....
..... [3]

6 Lean manufacturing aims to reduce waste in manufacturing.

Describe how waste can be reduced by considering:

- manufacturing processing;
- inventory;
- waiting.

Manufacturing processing.

.....

.....

..... [2]

Inventory.

.....

.....

..... [2]

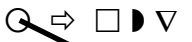


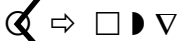
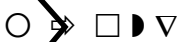
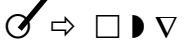
Waiting.

.....

.....

..... [2]

7 Part of a flow process chart is shown below.

Flow Process Chart			
<input checked="" type="checkbox"/> Present method <input type="checkbox"/> Proposed method			
Subject: Finishing and packaging Chart begins: Air cooling Chart ends: Pack in outer cartons			
Symbols	Description	Distance (m)	Time (s)
	Pierce top		7
	Wait		350
	Carry to packing line	10	60
	Box in dozens		10
	Conveyor to line 4	25	100
	Pack in outer cartons		15

(a) Tick the correct meaning of the **two** symbols shown below.

Symbol 1  [1] **Symbol 2**  [1]

- | | |
|------------------------------------|-------------------------------------|
| <input type="checkbox"/> Operation | <input type="checkbox"/> Delay |
| <input type="checkbox"/> Delay | <input type="checkbox"/> Transport |
| <input type="checkbox"/> Transport | <input type="checkbox"/> Operation |
| <input type="checkbox"/> Storage | <input type="checkbox"/> Inspection |

(b) Explain how the flow process chart shown could be used in planning for lean manufacture.

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[3]

10
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11
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