OCR
RECOGNISING ACHIEVEMENT

SPECIMEN

General Certificate of Secondary Education

Manufacturing

B232

Unit B232: Manufacturing Processes

Specimen Paper

Time: 1 hour

Candidates answer on the question paper.
Additional materials:

Candidate Forename		Candidate Surname	

Centre Number						Candidate Number				

INSTRUCTIONS TO CANDIDATES

- Write your name 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 you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do not write in the bar codes.
- Do not write outside the box bordering each page.
- Write your answer to each question in the space provided.

INFORMATION FOR CANDIDATES

- The number of marks for each question is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this paper is 60.

For Examiner's Use Only	
1	
2	
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11	
12	
13	
14	
15	
TOTAL	

This document consists of **7** printed pages and **1** blank page.

  [Turn over

1 For each product listed below select the correct sector.

SECTORS

Chemical and Pharmaceutical
Clothing and Textiles
Motor manufacturing
Food and Drink
Furniture
Machinery and Equipment
Packaging
Electronic and Communications

Product:

Mobile phone .....

Biofuel .....

Egg box .....

Corporate wear .....

Lawnmower .....

Mirror .....

Pizza .....

[7]

2 Complete the box below ('Manufacturing stages in correct order') by selecting the stages of manufacture in the correct order from the bulleted list.

Stages of Manufacture:

- Packaging
- Material supply and control
- Despatch
- Processing and production

Manufacturing stages in correct order
Production planning
Assembly
Finishing

[4]

3 Describe **two** ways to protect production workers from injury when manufacturing products.

1 .....

.....

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

2 .....

.....

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

4 State what the letters **CAD** stand for.

C…… **A**…… **D**…… **[1]**

5 Describe **two** benefits to a company of using CAD when **designing** manufactured products.

Benefit 1 .....

.....

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

Benefit 2 .....

.....

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

6 Tick **one** of the following products which you will use to answer the following questions.

- ☐ Mobile phone casing
- ☐ Biofuel
- ☐ Burger packaging
- ☐ Corporate wear shirt or blouse
- ☐ Rotary lawnmower body
- ☐ Mirror surface
- ☐ Sports drink
- ☐ Electric kettle body
- ☐ Birthday card
- ☐ Car door

For the selected product name one **material** from which it is made:

Material ..... **[1]**

For the material chosen, name the **form** in which it is supplied.

Form ..... **[1]**

Describe why using materials in their standard market form is important to manufacturers.

.....

.....

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

7 Describe **one** way you could research existing products to find out about manufacturing processes used in their production.

.....

.....

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

8 Discuss how ICT can be used for communication when **designing** a manufactured product.

[6]

9 Describe **two** ways ICT is used to ensure quality in manufactured products.

1

[2]

2

[2]

10 Explain why a prototype might not be made of the same material as the final product.

[3]

11 When working as part of a team to manufacture a product it is important to be a supportive team member. Name one other skill important to working as part of a production team and explain why it is important.

Team working skill: **[1]**

Explanation:

[2]

12 Discuss the importance of team roles, responsibilities and targets when manufacturing a product.

[6]

13 The table shows a comparison of six components that could be used in a manufactured product.

Component	Ease of storage	Easy to use	Safe to use	Value for money	Readily available
A	8	1	9	9	9
B	5	6	5	5	4
C	8	2	1	2	3
D	2	9	1	2	2
E	3	8	6	3	5
F	9	5	3	9	2

10 = excellent 1 = very poor

(a) State which component is the most readily available.

[1]

(b) Explain why component E would be the best choice for the workforce.

[2]

14 Explain how the information in the table could be used to identify the best of the six components to use in the product.

[3]

15 *Discuss the impact of modern technology on the local environment.

[6]

Total [60]

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OXFORD CAMBRIDGE AND RSA EXAMINATIONS

General Certificate of Secondary Education

MANUFACTURING B232

Unit B232: Manufacturing Processes

Specimen Mark Scheme

The maximum mark for this paper is **60**.

This document consists of **10** printed pages.

<table>
<tr><th>Question Number</th><th>Answer</th><th>Max Mark</th></tr>
<tr><td>1</td><td>
For each product listed below select the correct sector.
SECTORS
<table>
<tr><td>Chemical and Pharmaceutical:</td></tr>
<tr><td>Clothing and Textiles</td></tr>
<tr><td>Motor manufacturing</td></tr>
<tr><td>Food and Drink</td></tr>
<tr><td>Furniture</td></tr>
<tr><td>Machinery and Equipment</td></tr>
<tr><td>Packaging</td></tr>
<tr><td>Electronic and communications</td></tr>
</table>
<table>
<tr><td>Mobile phone</td><td>Electronic and communications</td></tr>
<tr><td>Biofuel</td><td>Chemical and pharmaceutical</td></tr>
<tr><td>Egg box</td><td>Packaging</td></tr>
<tr><td>Corporate wear</td><td>Clothing and textiles</td></tr>
<tr><td>Lawn mower</td><td>Machinery and equipment</td></tr>
<tr><td>Mirror</td><td>Furniture</td></tr>
<tr><td>Pizza</td><td>Food and drink</td></tr>
</table>
</td><td>[7]</td></tr>
<tr><td>2</td><td>
Complete the box below (‘Manufacturing stages in correct order’) by selecting the stages of manufacture in the correct order from the bulleted list.
Stages of Manufacture:

Packaging
Material supply and control
Despatch
Processing and production

1 mark for each of 4 items correctly placed
Production planning (answer given)
Material supply and control
Processing and production
Assembly (answer given)
Finishing (answer given)
Packaging
Despatch
</td><td>[4]</td></tr>
</table>

Question Number	Answer	Max Mark
3	**Describe <u>two</u> ways to protect production workers from injury when manufacturing products.** 2 marks for each of 2 ways given(1), with expansion(1), for example: Personal Protective Equipment (PPE) to protect from hot ovens/platens/welding torches/sharp edges/etc Identify hazards, by painting bright yellow/adding striped tape/ standard signage Identify hazards, such as sharp edges/hot surfaces Machine guards, to protect from (as above) Training, so that safe practice is normal/ aware of potential hazards Good housekeeping, to prevent accidents/ hazards such as swarf build up/ tools left lying around where they could fall and injure someone/ be a tripping hazard.	**[4]**
4	**State what the letters CAD stand for.** **C…… A…… D……** One mark for Computer Aided Design	**[1]**
5	**Describe <u>two</u> benefits to a company of using CAD when designing manufactured products.** Two marks for each of two benefits described, for example a feature and why or how it is beneficial to a company: Designs can be sent electronically saving time and postage. Designs can be amended without redrawing, saving time. 2D drawings can be viewed as 3D objects, stress/load calculations can be carried out automatically/optimise design so less material needed.	**[4]**

Question Number	Answer	Max Mark
6	**Tick one of the following products which you will use to answer the following questions.** ☐ **Mobile phone casing** ☐ **Biofuel** ☐ **Burger packaging** ☐ **Corporate wear shirt or blouse** ☐ **Rotary lawnmower body** ☐ **Mirror surface** ☐ **Sports drink** ☐ **Electric kettle body** ☐ **Birthday card** ☐ **Car door** **For the selected product name one material from which it is made:** **For the material chosen, name the form in which it is supplied.** No marks for the product identified. For <u>that</u> product: One mark for correct material One mark for supplied form: Biofuels: • sugar cane/plant oil o stems/liquid Corporate wear shirt or blouse: • polyester/poly cotton/acrylic o roll/yarn Mobile phone casing: • ABS/PC or PC-ABS (Acrylonitrile Butadiene Styrene/Polycarbonate Alloy) o granules sports drink: • water o liquid or mains Mirror surface: • glass o sheet Rotary lawnmower body: • ABS o granules Burger packaging: • polystyrene/recyled card o sheet	**[1]** **[1]**

Question Number	Answer	Max Mark
	Electric kettle body: • stainless steel or aluminium o sheet • ABS o granules Birthday card • card o sheet Car door • mild steel o sheet **Describe why using materials in their standard market form is important to manufacturers.** Standard Market forms Reason and explanation e.g. Reduces waste [1] and therefore reduces environmental impact[1] Reduces production costs{1] as material form/size does not require alteration[1]	**[2]**
7	**Describe <u>one</u> way you could research existing products to find out about manufacturing processes used.** Two marks for the method described (what the method is and how it is carried out): Eg looked for injection mould marks Emailed company asking .. Watched video showing…. Had a visiting speaker who said…..	**[2]**
8	**Discuss how ICT can be used for communication when designing a manufactured product.** Six marks for a discussion giving 3 relevant points stating why 2 are relevant and giving an example. Or for critical evaluation of how ICT is used for communication on a manufactured product. Examples of points: Presentation package to show design ideas to client Spreadsheet to calculate loadings/costs/total weight Word processor to write for details of….. Email to write for…/ to attach CAD files /etc to send to…. Mobile phone to check with site surveyors. Identification and expansion of any of the above. List is not exhaustive	**[6]**

Question Number	Answer	Max Mark
9	**Describe <u>two</u> ways ICT is used to ensure quality in manufactured products.** Two marks for each of two descriptions of ICT used to check quality giving the ICT used and how or for what, for example: Sensors are used to check dimensions and the computer controls which are passed, sent for rework or rejected. Computer selects a random sample and runs electrical tests on them	**[4]**
10	**Explain why a prototype might not be made of the same material as the final product.** Three marks for a clear explanation, (guidance: why, how, example). Easier/faster to work(1) than…(1) Prototype for aesthetics/ergonomics only (1)(eg stereo lithography) Cheaper/lighter(1) than…(1) Easier to modify(1) than (1) Can be re-used (1). (such as (1) wax machining, expanded polystyrene cake form for decorating)	**[3]**
11	**When working as part of a team to manufacture a product it is important to be a supportive team member. Name one other skill important to working as part of a production team and explain why it is important.** One mark each for naming the team working skill Good communicator, time keeping etc Two marks for associated explanation	**[1]** **[2]**

Question Number	Answer	Max Mark
12	**Discuss the importance of team roles, responsibilities and targets when manufacturing a product.** Six marks for a discussion giving relevant points, stating why two are relevant and giving an example. Example of points: • Ensuring all personnel have specific tasks within their capabilities/ work to strengths • Changing/varying roles to avoid disenchantment • Ensuring responsibilities to get the job done • Avoiding personnel being under used/valued • If personnel don't have allocated roles duplication could happen • If personnel don't have allocated roles "gaps" could materialise • If role/responsibility too great unhappiness could ensue • Appropriate feeling of self worth • Appropriate feeling as valued member of team • Smoother production because personnel within their comfort zone. Setting and agreeing individual and team targets: • Short term targets help identify delays early • Avoidance of lack of structure to task in hand. • Providing "clear" structure to enable quality control to be easily undertaken • Providing tangible focus for activity • Providing opportunity for individual to see where they fit into bigger picture • Bonding of team • Sharing responsibility for "the bigger picture" • Ability to "switch" personnel because weaknesses can more easily be identified.	**[6]**

<table>
<tr><th>Question Number</th><th>Answer</th><th>Max Mark</th></tr>
<tr><td>13</td><td>The table shows a comparison of six components that could be used in a manufactured product.
<table>
<tr><th>Component</th><th>Ease of storage</th><th>Easy to use</th><th>Safe to use</th><th>Value for money</th><th>Readily available</th></tr>
<tr><td>A</td><td>8</td><td>1</td><td>9</td><td>9</td><td>9</td></tr>
<tr><td>B</td><td>5</td><td>6</td><td>5</td><td>5</td><td>4</td></tr>
<tr><td>C</td><td>8</td><td>2</td><td>1</td><td>2</td><td>3</td></tr>
<tr><td>D</td><td>2</td><td>9</td><td>1</td><td>2</td><td>2</td></tr>
<tr><td>E</td><td>3</td><td>8</td><td>6</td><td>3</td><td>5</td></tr>
<tr><td>F</td><td>9</td><td>5</td><td>3</td><td>9</td><td>2</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="4">10 = excellent 1 = very poor</td><td></td><td></td></tr>
</table></td><td></td></tr>
<tr><td>13(a)</td><td>State which component is the most readily available.
A</td><td>[1]</td></tr>
<tr><td>13(b)</td><td>Explain why component E would be the best choice for the workforce.
1 mark for identifying both ease of use and safe to use as key features to consider. 1 for relevant comparison from: best total for 2, not worst for either, or better than average both.</td><td>[2]</td></tr>
<tr><td>14</td><td>Explain how the information in the table could be used to identify the best of the six components to use in the product.
3 marks for clear explanation, giving points such as: reject any that is poor in any category; add up all the scores; consider other (stated, relevant) features; weight features according to (stated, relevant); considerations of other company priorities (current use, experience, equipment etc).</td><td>[3]</td></tr>
</table>

Question Number	Answer	Max Mark
15	**Discuss the impact of modern technology on the local environment.** Examples of points • Improved transport links and traffic controls • internet purchases means less travel effect on local roads • less emissions • less noise or more noise – needs explanation • better / more improved domestic products • improved social facilities • more people working from home • improved domestic and commercial communications • better local lighting. • reduce crime (CCTV), speed cameras, traffic lights • landfill sites Identification and expansion of any of the above. List is not exhaustive. Level 1 (0-2 marks) Basic discussion showing some understanding of the impact of modern technology on the local environment. There will be little, or no, use of specialist terms. Answers may be ambiguous or disorganised. Errors of spelling, punctuation and grammar may be intrusive. Level 2 (3-4 marks) Adequate discussion showing an understanding of the impact of modern technology on the local environment. There will be some use of specialist terms, although these may not always be used appropriately. The information will be presented for the most part in a structured format. There may be occasional errors in spelling, punctuation and grammar. Level 3 (5-6 marks) Thorough analysis, showing a clear understanding of the impact of modern technology on the local environment. Specialist terms will be used appropriately and correctly. The information will be presented in a structured format. The candidate can demonstrate the accurate use of spelling, punctuation and grammar.	**[6]**
	Paper Total	**[60]**

Assessment Objectives Grid (includes QWC)

Question	AO1	AO2	AO3	Total
1	7			**7**
2	4			**4**
3		4		**4**
4	1			**1**
5	4			**4**
6	4			**4**
7	2			**2**
8		6		**6**
9		4		**4**
10			3	**3**
11	1	2		**3**
12		6		**6**
13(a)			1	**1**
13(b)			2	**2**
14			3	**3**
15*			6	**6**
Totals	**23**	**22**	**15**	**60**