

Manufacturing

General Certificate of Secondary Education

Unit **B232**: Manufacturing Processes

Mark Scheme for June 2011

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Question		Expected Answers	Marks	Rationale
1	(a)	<p>Complete the links below to identify which manufacturing sector makes the products listed.</p> <p>Chemical and Pharmaceutical - Shampoo Furniture - Wardrobe Food and drink – Bread rolls Packaging - Coffee jar Electrical and Communication - Calculator Paper and print - Poster</p> <p>One mark for each correct link (6x1)</p>	[6]	
	(b)	<p>State two manufacturing sectors not shown above and give one example of a product made in each sector.</p> <p>Electrical; Clothing and textiles; Motor manufacturing; Machinery and equipment</p> <p>One mark for each manufacturing sector named and one mark for product <u>relevant to</u> the sector</p> <p>Examples:- Electrical – electric fire/kettle/clock Clothing and textiles – shoes; uniforms; bed clothes Motor manufacturing – trailers; car wheels; car body Panels Machinery and equipment – wheelbarrow; lift; crane</p> <p>2 x (1+1)</p>	[4]	

Question		Expected Answers	Marks	Rationale
2	(a)	<p>Complete the chart below by adding the following manufacturing stages in the correct order.</p> <p>One mark for each stage given in correct position in chart:- Material supply and control Assembly Final quality check Packaging (4x1)</p>	[4]	
	(b) (i)	<p>Name two tools or items of equipment used in this stage. (Assembly)</p> <p>One mark for each tool/item of equipment. <u>relevant</u> to the assembly stage Examples:- pneumatic screwdriver; press/riveter; purpose made clamps; spanners (1+1)</p>	[2]	
	(ii)	<p>Describe one activity carried out within the assembly stage.</p> <p>One mark for the activity carried out; one mark for a description Example:- pneumatic screwdriver used to tighten screws into assembly to the correct torque(tightness) (1+1)</p>	[2]	
	(iii)	<p>Give one safety precaution for each of the two tools or items of equipment named in part (i) above.</p> <p>One mark for each relevant safety precaution Pneumatic screwdriver - goggles; ear defenders (1+1)</p>	[2]	<p>Accept PPE</p> <p>Do not reward repetition</p>

Question			Expected Answers	Marks	Rationale
3	(a)		<p>One factor that should be considered when choosing materials for a manufactured product is ease of storage.</p> <p>Give <u>three</u> other factors that should be considered and explain why each is important.</p> <p>(i)</p> <p>(ii) Examples: cost; recyclability; safety in use; nutritional value; suitability for manufacturing process; properties; availability; forms of supply</p> <p>(iii)</p> <p>One mark for each factor; one mark for stating importance plus one mark for clear explanation 3 x (3x1)</p>	[3] [3] [3]	
4	(a)	(i)	<p>State what is meant by the term 'prototype'.</p> <p>First example of a product (1) made for evaluation/testing; to be developed further before production. (1) (1+1)</p>	[2]	
		(ii)	<p>Give two reasons for making a 'prototype' of a manufactured product.</p> <p>Save cost of full production; testing design/materials; produce 3D product for client approval; (1+1)</p>	[2]	

Question		Expected Answers	Marks	Rationale
5	(a)	<p>Give two benefits to a manufacturer of using computer controlled machines.</p> <p>Reduction in workforce costs increased output more consistent quality no 'breaks' needed easier/quicker 'change-over' of products safer/less injury to work force</p> <p style="text-align: right;">(1+1)</p>	[2]	
	(b)	<p>Explain, using one example, how the use of computer controlled machines can make the working environment safer.</p> <p>Explanation could include reference to tools/equipment can be automatically guarded; machines can work in 'unhealthy' conditions; less chance of human error accidents; workers more remote from process</p> <p>Reference to example (1); difference made (1); explanation (1)</p> <p style="text-align: right;">(3X1)</p>	[3]	

Question		Expected Answers	Marks	Rationale
6	(a)	<p>Describe how modern technologies might be used in the following stages of developing a new product.</p> <p>One mark for the technology used; one mark for description of use</p> <p>Examples:-</p> <p>(i) Research – use of Internet for information gathering; computer testing of materials</p> <p>(ii) Design – CAD packages; 2D modelling; 3D imaging/animation</p> <p>(iii) Developing design ideas – use of CAM /rapid prototyping systems; virtual modelling; testing software; 3D imaging 3 x (1+1)</p>	<p>[2]</p> <p>[2]</p> <p>[2]</p>	Do NOT accept simple repetition of 'design' stage response
	(b)	<p>Describe two advantages of using modern technologies compared with more traditional methods when developing a new product.</p> <p>One mark for advantage plus one mark for additional information</p> <p>(i) Information is readily available 'on-line' – no need to search in 'catalogues'</p> <p>(ii) Use of CAD packages is less time consuming than 'drawing'; 3D imaging allows clear picture of product without having to make a model;</p> <p>(iii) CAM/rapid prototyping makes accurate 'models' quickly/ not needing skilled workers 2 x (1+1)</p>	[4]	Do not reward repetition

Question		Expected Answers	Marks	Rationale
7	(a)	<p>Explain the use of a control system in:</p> <p>Explanation to include reference to operation of system (1); application of input/output/feedback (1); clear explanation (1) Examples:-</p> <p>(i) Production control – computer controlled output; automatic sensors/counters/scales; stops production after amount reached; application in CIM; stock control</p> <p>(ii) Quality control – automatic rejection of ‘scrap’; automatic resetting of machines; sensors for inspection of sizes/profiles/weights</p> <p style="text-align: right;">2 x (3x1)</p>	<p>[3]</p> <p>[3]</p>	

Question	Expected Answers	Marks	Rationale
8*	<p>Discuss the implications for the workforce when a manufacturer introduces modern technologies</p> <p>Six marks for a discussion or critical evaluation of relevant implications.</p> <p>The response may include the following points: Potential loss of jobs; need to re-train for new skills; working conditions should improve; handling of new materials may need extra safety training/protection; possibly need to work other shifts for 24hr production</p> <p>Level 1 (0 – 2 marks) Basic discussion showing some understanding of the implications for the workforce of introducing modern technologies and materials. 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.</p> <p>Level 2 (3 – 4 marks) Adequate discussion showing reasonable understanding of the implications for the workforce of introducing modern technologies and materials. 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.</p> <p>Level 3 (5 – 6 marks) Thorough analysis showing a clear understanding of the implications for the workforce of introducing modern technologies and materials. 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.</p>	[6]	
	Total	[60]	

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