OCR
RECOGNISING ACHIEVEMENT

GCSE

Manufacturing

General Certificate of Secondary Education

Unit **B234:** Impact of Modern Technologies on Manufacturing

Mark Scheme for June 2013

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

Question			Answer	Marks	Guidance
1	(a)		Packaging – Milk carton Paper and print – Business card Furniture – Desk Motor manufacturing – Alloy wheel Food and drink – Cereal bar Clothing and textiles – Hat Electrical – Security light (7x1)	[7]	Award one mark for each correct link
	(b)		Answers could include: Desk – CNC machining, laser cutting of wood, CAM Alloy wheel – spun rim casting Business card – laser cutting of designs Hat – CNC sewing machine	[1]	No mark for naming product Award one mark for technology appropriate to the named product. Accept component e.g., 'L.E.D. in desk lamp Accept CAD which is part of the design process which in turn is part of the manufacturing process.
	(c)		Answers could include: Electronic and communication – mobile phone Machinery and equipment – trolley jack Chemical and pharmaceutical–shampoo (1+1)	[2]	Award one mark for naming a sector and a further one mark for an appropriate product relevant to that sector. Justification required for full marks
2	(a)		Examples could include: Glass, paper, cardboard, plastics, cotton waste, offcuts of textile materials, aluminium This list is not exhaustive. (2x1)	[2]	Award one mark for naming a material that is viable for recycling Although technically incorrect, accept 'plastic' as BOD Accept 'metal' as BOD for one mark.
	(b)		Answers could include: Safety, cost, environment, transport issues, handling, processing metals, recyclability, This list is not exhaustive. (2 x 2)	[4]	Award one mark for identifying a factor and a further one mark for description. Justification required for full marks

Question			Answer	Marks	Guidance
3			Answers could include: **Training.** Staff will need to be trained to use the new machinery (1) so that they can use it safely (1) without damaging the machine (1) or injuring themselves or others (1) **Product variety** Quick change over make multiple products viable (1), launch of new products is quicker(1), new technology should make the change-over time between products quicker (1) programs can be saved and quickly loaded(1) making a wider variety of products on the same machine (1) **Material selection** Ensuring that the materials are appropriate to the process. Is material structure compromised during process? Some materials may not be compatible (1) the company may have to change which material it uses (1) the material may have to be treated or finished to allow it to be used with the new technology (1) form of supply (1) 3x2)	**[6]**	Award one mark for salient point and a further one mark for description. Justification required for full marks

Question			Answer	Marks	Guidance
4	(a)		Answers could include: Delivery, storage, cost, inventory, if they are compatible / fit for purpose, availability, time saving, safety issues, (3 x 1)	[3]	Award one mark for each correct factor;
	(b)		Answers could include: Quality issues, failure to supply, loss of control, cost increase, (3 x 1)	[3]	Award one mark for each viable disadvantage;
	(c)		Answers could include: reducing the number of different (1) components that make a product (1) results in less errors (1) products are cheaper (1)	[3]	Award one mark for each correct point and up to three marks for a correct explanation. Justification required for full marks.
5	(a)	(i)	Answers could include: waiting or wasting time, idle time	[1]	Award one mark for naming the correct waste.
		(ii)	Examples could include: Slows overall production down (1) quality is not as good as morale is affected (1) machine is working at is limit so more likely to breakdown (1) waiting causes workers to rush when product becomes available (1+1+1)	[3]	Award one mark for single named affect or impact and up to a further two marks for explanation. Justification required for full marks.
	(b)		Answers could include: Is it compatible with materials, batch size, space, installation / running /costs, manpower skill levels, ease of changing product, quality of product. Example: The amount of available space should be considered (1), if the machine is too big a new building may be required (1) (2 x 2)	[4]	Award one mark for each factor and up to a further two marks for explanation. Justification required for full marks.

Question			Answer	Marks	Guidance
6			Answers could include: Team skills, tools, time, batch size, materials, process, available space , the skills within the team should be considered (1) to make sure the right person is doing each task (1), how many team members are needed (1) to make the batch in the time available (1), the tools that will be needed to make the batch (1) and making sure the person using them is trained (1) (3x2)	**[6]**	Award one mark for each correct factor and a further one mark for description. Justification required for full marks.
7			Answers could include: **Noise** – Neighbours complain of disturbance, don't buy companies products, complaints to authorities, bad publicity. **Transport** – roads blocked by company's lorries, possible accidents due to congestion, damage to roads, air pollution, noise **Employment** – Positive if taking on staff, negative if making employees redundant. Union/strikes bring bad publicity. (3 x 3)	**[9]**	Award one mark for correct example and up to a further two marks for a clear explanation. Justification required for full marks. Do not award repetition across answers.

Question			Answer	Marks	Guidance	
					Content	Levels of response
8*			Six marks for a discussion or critical evaluation of issues relating to the effects of modern technologies on the health and safety of the workforce	[6]	Responses may include references to the following points: Improvement through safety guarding, new equipment means that workers are better trained. Automatic safety shut offs. Better air quality. Robots carry out work in hazardous areas, heavy loads and parts are moved by robots.	**Level 3 (5–6 marks)** Thorough analysis showing a clear understanding of the impact of modern technology on the production of waste. 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. **Level 2 (3–4 marks)** Adequate discussion showing an understanding of the impact of modern technology on the production of waste. 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 1 (0–2 marks)** Basic discussion showing some understanding of the impact of modern technology on the production of waste. 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.
			Total	**60**		

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