



Mark Scheme (Results)

Summer 2019

Pearson Edexcel GCE

In Product Design: Resistant Materials Technology

Unit 3: Designing For The Future

6RM03/01

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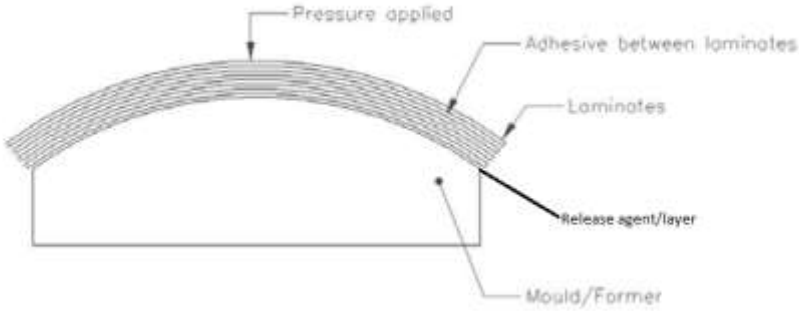
Publications Code 6RM03_01_1906_MS

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Question Number	Answer	Mark
1(a)	 1. Mould/former (male and female) (1) 2. Release agent/layer (1) 3. Adhesive (1) 4. Pressure/clamps (1) 5. Laminates (1)	(4)
1(bi)	Any two of the following examples from: 1. Products will become out-dated (1) therefore manufacturer will sell more of the latest products (1) 2. A predetermined lifespan (1) means manufacturers can plan change more effectively (1) 3. Less money is tied up in stock (1) as parts are no longer needed for repairs (1) 4. Cheaper parts can be used (1) if the life span is shorter (1)	(4)
1 (bii)	Any two of the following examples from: 1. New products/designs will become available regularly (1) therefore allowing the consumer to keep up to date/in fashion (1) 2. Consumers have a wider choice (1) because companies are in greater competition to deliver new products (1) 3. Designs can be more innovative (1) as there is always a demand for improved products (1) 4. Cheaper products (1) due to competition/cheaper materials (1)	(4)
	Total for question	12

Question Number	Answer	Mark
2(a)	Any three of the following benefits with its linked relevant explanation:- 1. Speed of movement (1) increases production capacity. (1) 2. Accuracy of positioning / movement (1) means increased levels of complexity can be gained.(1) 3. Reliability / repetitive accuracy / human error (1) leads to fewer rejects / higher quality components.(1) 4. Flexibility / easily re-programmed (1) means range of products can be manufactured / production easily updated. 5. Reduced labour requirements (1) leads to wage / cost savings. 6. They can work 24/7 without breaks / shifts / etc. (1) so production is more reliable. (1) 7. Can remove employees from hazardous environments (1) making manufacturing safer / reducing risk of injury. (1)	(6)
2(b)	1. Increased unemployment as many systems become automated. (1) 2. Some jobs reduced to machine minding. (1) 3. Workers are needed with high levels of ICT skills. (1) 4. Workers need to be re-trained frequently to keep up with new technology. (1) 5. Workers need to be good team players / have better people skills. (1) 6. Workers need to be flexible so they can fulfil a number of roles. (1) 7. Increased levels of numeracy and literacy are required in order to access ICT based systems. (1)	(6)
		12

Question Number		Mark
3(a)	Any four of the following examples from: 1. Biodegradable (1) 2. Sustainable / renewable polymer as it can be re-grown (1) 3. Degrades quickly (1) 4. Degrades fully/takes up less space in landfill (1) 5. Doesn't produce many toxic by-products during production/ biodegrading, that affect the environment (1) 6. It can be recycled (1)	(4)
3(b)	Any eight of the following points but the response must contain at least one positive and one negative. Positives 1. Reusable products appeal more to environmentally aware consumers. (1) 2. Fewer products will be discarded to landfill (1) 3. Reduced pollution. (1) 4. Manufacturer has reduced need for raw materials / production systems / energy. (1) 5. Products often cost less for the consumer (1) 6. Refill packs are often lighter / more convenient to transport (1) 7. Original product is often higher in quality to withstand the rigours of repeated use (1) 8. Deposit/refund on returned containers Negatives 9. Workable collection systems need to be established in order to recover the used products. (1) 10. A system to refill / reprocess / clean the product needs setting up. (1) 11. Consumers expect a lower price on a reconditioned product. (1) 12. Less new original products will be sold. (1) 13. Often costs more to re-process than manufacture new. (1) 14. The original product is often made from more expensive materials. (1) 15. Consumers may need re-educating/training. (1)	(8)
Total for question		12

Question Number	Answer	Mark
4a	1. Easier to contact groups of people. (1) 2. Message content is stored for reference purposes/tracking/running discussion. (1) 3. Attachments can be easily sent. (1) 4. Person does not have to be available to immediately answer the phone. (1) 5. Emails give you more thinking time. (1) 6. Easier to filter / prioritise messages. (1) 7. More private than audible phone calls. (1)	(6)
4b	Do not award 'time' or 'cost' in isolation. 1. It gives an instant account of all transactions (1) 2. It gives the means to monitor on a daily basis, the performance/popularity/demand for all products (1) 3. Tracks buying habits/rewards/offers (1) 4. Ensure stock is reordered before it runs out (1) 5. Ensure over stocking does not happen (1) 6. Prevents unnecessary capital being tied up (1) 7. It provides data which can be automatically loaded into financial analysis spread sheets (1) 8. EPOS reduces the time between order and receipt of a product (1) 9. Reduced human error (1) 10. Reduced human labour / wages (1)	(6)
	Total for question	12

Question Number	Answer	Mark
5	1. Soil erosion (1) 2. Watershed destabilisation (1) 3. Climate change/global warming (1) 4. Reduction in eco-systems/animal habitat destruction (1) 5. Reduction of genetic diversity (1) 6. Indigenous people's lives are destroyed (1) 7. Undocumented knowledge of forest management is lost (1) 8. Loss of livelihood for forest dependent peoples (1) 9. Timber shortage (1) 10. Reduced oxygen/increase carbon dioxide (1) 11. Reducing the availability of medical products (1)	(10)
	Total for question	10

Question Number	Answer	Mark
6	A maximum of 11 marks if only advantages or disadvantages are mentioned Advantages 1. Reduction of lead time (1) 2. Be able to react/respond to changes in fashion/trend (1) 3. Automated stock handling (1) 4. Reduced down time when changing product/process (1) 5. Increased market share (1) 6. Products can be customised (1) 7. Automated QC (1) 8. Lower stock holding/storage costs (1) Disadvantages 9. High set up costs (1) 10. Reduced production rate when compared to dedicated production line (1) 11. Increased reliance on suppliers to react to demand (1) 12. Co-ordinating all aspects, production/planning/purchasing/human resources is difficult (1) 13. Lag in customer receiving order (1)	(12) 12

