

Examiners' Report/
Principal Examiner Feedback

January 2012

Principal Learning

Engineering
EG208 Paper 01

Exploring Engineering Innovation,
Enterprise and Technological
Advancements

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Exploring Engineering Innovation, Enterprise and Technological Advancements

Overall, the paper produced a very good range of responses. Lower ability candidates often gave simplistic responses to questions and gained limited marks. Some candidates often repeated answers or phrases which limited their access to some marks. The more demanding questions at the end of the paper provided candidates with an opportunity to expand and apply their knowledge and it was pleasing to see some very good responses. As in previous series, candidates would benefit from being taught examination skills and techniques as often they did not read the questions properly and questions were not answered using the 'state, describe, explain' method. The questions centred around the pre-release material for the Vacuum Backpack.

Question 1

This question was aimed at a range of aspects relating to intellectual property.

Q1(a): the majority of candidates correctly associated the different types of intellectual property with their descriptions.

Q1(b)(i) & Q1(b)(ii): many candidates were unable to identify Copyright as the correct intellectual property type but were able to identify at least two simple methods of proving ownership with typical responses referencing the use of a bank or solicitor to lodge appropriate documentation. However, many candidates misread the question and simply stated four types of intellectual property.

Q1(c): there were some good responses from candidates allowing them to access at least two marks with responses such as 'preventing someone copying your idea' and 'allowing you to sell the product for financial gain'.

Question 2

This question was aimed at (a) fund providers, (b) research and (c) development.

Q2(a): this question was answered poorly with many candidates only scoring half marks. Many candidates were confused with the descriptions of a Sponsor and a Stakeholder.

Q2(b): a significant number of candidates scored full marks for this question. However, some candidates were unable to give enough variation for the need to undertake market research activities so there was repetition in responses. Typical acceptable responses centred around the need to look at similar products, ensuring theirs were different and obtaining customer feedback relating to pricing.

Q2(c): the majority of candidates scored maximum marks here with good responses relating to the possible tests that could be performed on the prototype VacBack before mass production commenced. Many candidates were able to describe some 'durability tests', along with some form of 'electrical testing'.

Question 3

This was aimed at testing knowledge of modern materials. The first parts of the question were set in the context of the pre-release.

Q3(a): Borderline candidates were unable to identify two physical properties of a material suitable for extruding the main suction tube. Instead they responded with a range of properties relating to the hose of the cleaner and its 'flexibility' which was incorrect.

Q3(b): Most candidates scored well here with the typical response being 'aluminium'.

Q3(c): Many of the borderline candidates were not able to identify the correct form of supply for most of the shapes presented. However, the majority of candidates were able to recognise the 'square form'.

Q3(d): This proved to be a very good differentiator with borderline candidates able to define the term 'alloy' as being 'a mixture of two or more metals', whereas A* candidates were able to identify the 'improved properties as a result of making an alloy'.

Q3(e): This question received a mixed response from candidates with many able to identify a ferrous metal as one that contains iron. However, incorrect responses focused around a metal that does not 'corrode'. The majority of candidates were able to identify a ferrous metal such as 'steel' or 'stainless steel'. Many candidates also gave 'iron' as an example which was also accepted. Some candidates again misread the question and gave a definition of a 'non-ferrous' metal.

Question 4

This question was aimed at the material used to make the cells in the battery and the disadvantages of using rechargeable batteries in the home environment.

Q4(a): The majority of candidates scored well here and gave typical responses such as 'lithium' or 'nickel cadmium'.

Q4(b): Most candidates were able to describe two disadvantages of using rechargeable batteries in the home environment and scored well here. However the workplace and built environment answers were usually repetitive. Most candidates picked up on the need to recharge batteries adding to costs or 'continuous charging reduces the life and strength of the

battery'. However, some candidates gave responses relating to a choking hazard which could be applied to normal alkaline batteries.

Question 5

This question was centred around the process of extrusion.

The intended response was to focus around aluminium extrusion. However, the wording in the question meant that plastic extrusion could be accepted as an appropriate answer. Many candidates scored poorly here as they simply gave a description of the injection moulding process. However, where possible, candidates were rewarded for the use of key words and sketches that clearly showed plastic extrusion processes and not just injection moulding. A number of candidates produced a very detailed account of the extrusion process supported by clear diagrams.

Question 6

This question examined the candidates' knowledge of environmental impacts of the manufacture of the VakBack product.

The majority of candidates sitting the examination paper attempted the final questions. This is pleasing as it is good exam technique for candidates to attempt all questions.

Q6(a): The majority of the candidates sitting the examination paper attempted this part. Many candidates were able to present coherent descriptions of use of alternate forms of energy to power machinery reducing the carbon footprint of the business.

Overall this has proved to be a similar paper as the previous series, however, there were slightly better responses to Q5.

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