Pearson

Examiner's Report
Principal Examiner Feedback

Summer 2018

Pearson Edexcel GCE Advanced Level

In D&T: Restistant Materials (6RM03) paper 1

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The structure of 2018 6RM03 paper followed the previous format in that it contained seven questions and had a time limit of 120 minutes. Most questions are broken into sub-sections (called items) in order to access a greater range of the specification. Where possible the sub-sections are generally related, though this is not always the case. Some questions, generally towards the end of the paper, require a more in-depth answer and command a larger number of marks per response. This year the minimum mark for an item is 2 marks, ranging up to a maximum of 10 marks for a full question,

The paper is written to test candidate's knowledge, understanding and application of the following:

- Industrial and commercial practice
- Systems and control
- Design in context
- Sustainability.

There is a range of command words which are consistent across both A/S and A2 papers and are used to help guide the candidates. Understanding the command words will help candidates to structure their answers appropriately.

Give / State / Name

- These are usually 1 + mark questions where all the marks can be gained by single 'stand-alone' answers.
- Responses to these questions usually require a single statement or single sentence for the 1 mark.

Describe / Explain / Identify / Justify / Outline

- These are usually 2 + mark questions with 'linked' answers.
- Responses to these questions usually require a statement **and** a development of that statement for the indicated further marks. The development might be:
    - A justification
    - An example
    - A development.

Evaluate / Discuss

- These are usually 4+ mark questions.
- Requires a developed series of statements that contain arguments both for and against.
- Full marks will **not** be awarded without at least **one** for **or** against argument.

The follow are points which have improved from last year's examination:

- There was an encouraging decrease in the number of blank answers, with most candidates attempting the vast majority of the questions even if some were 'educated guesses'.
- The use of bullet pointed answers seems to help many candidates clarify their responses, but it is important for the bullet points to be coherent sentences and not just single word responses
- The majority of candidates are now staying within the clipped areas.

- More centres are clearly teaching the subject content in more depth.

The following are points which still need attention:

- Poor handwriting and grammar (this made some answers difficult to decipher).
- Reading and digesting the question **fully** before answering therefore missing the point of the question and giving answers which did not score many marks.
- Understanding the basic examination terminology.
- Answers that were not concise and went onto additional sheets, very often didn't score further marks on the extra sheets.
- Some candidates still use the 'blank' pages in the booklet for extra space. These pages do not get scanned with the answer and unless some indication is made by the candidate, these pages will not get marked.
- Candidates must use more correct technical vocabulary in their answers as far too many answers are limited to 'general' descriptions of processes and procedures.
- Candidates should not write in ink pen. The wet ink often smudges onto the opposite page, or bleeds through the pages so that there are two sets of very confused text which is extremely difficult to decipher
- Candidates must be more concise and **plan** their work before starting. Answers go round in circles repeating the same point numerous times.

Q01(a)

This question was a straight forward 'State' question which required candidates to list two stabilisers, **other** than Biostabilisers

Marks were awarded for **any** words used to reference heat or light, so in this case UV and Temperature score the marks

There were still too many candidates who used Biostabiliers in their answers, even though this is stated in the question.

Q01(b)

This question required candidates to give 'reasons why' a Biostabilser might be added. This required knowledge of the outcomes and resultant change of property if a Biostabiliser were to be added.

Sometimes two points are made in one answer. This will be credited accordingly

Q01(c)

It is important that candidates understand the terms they are using, so they can apply them correctly. As an example, candidates needed to be careful in distinguishing between volume (relevant for this question) and mass (not relevant here).

Q02(a)

This question was focussed on material recovery and required candidates to outline how this could be made easier. All parts of the mark scheme were accessed. The main issue was that candidates didn't accurately read the question and discussed recycling/reuse/use biodegradable materials, rather than recovering materials. These candidates did not perceive that it was about 'design' for recovery rather than disposal.

A strong answer would cover a wide range of the mark scheme, and clearly demonstrate understanding of the concept of material recovery

Q02(b)

This question focussed on the **advantages** of computers to generate design specifications, and required candidates to explore their use across the whole range of industrial production. Generally all parts of the MS were accessed, but many candidates didn't accurately grasp what a design specification really comprised of, and hence were lacking detail to get marks. A common example would be not explaining why the process was faster.

A strong answer covers the relevant points, sometimes explaining why or giving examples; other answers a little brief, but did show some understanding of the concept.

Q03(a)

This question focussed on Streamlining and required the candidates to outline the design characteristics of this design movement. Generally there was a reasonably good understanding shown by many candidates (teardrop, aerodynamics, curved shapes, for example). However, there was some confusion about the relationship between function and form, and also some candidates confused a number of other design movements with Streamlining. Very few candidates provided a successful description of industrial connection in BP8.

Examiners are just looking for **four** correct, distinct, answers. Candidates should therefore avoid repetition, and provide clarity in distinguishing their points.

Q03(b)

This question focussed on the **difficulties** a company may face when considering the global marketplace, and required candidates to link four points with a relevant explanation. The biggest issue here was that a lot of the good points made were justified with the **same** point about cost. Whilst this is technically correct, there were sufficient other answers which could have been used. Candidates need to understand that the same justification, used multiple times, can't be credited more than once.

Many candidates didn't seem to appreciate the full scenario of selling globally. A number of answers suggested a tendency to concentrate on websites and selling over the internet, which limited access to all available marks in this question. Many candidates generated to good range of relevant points but they weren't linked, so only scored 1 mark. Strong answers showed that there were numerous ways in which many of the points could be justified, with linked and relevant points from the mark scheme.

The use of words/phrases like 'so', 'therefore', 'as a result' and 'resulting in' are a very good way of making sure a linked point is made so 2 marks can be accessed for each response.

Responses were required to be relevant to a global market place. The following examples were not sufficiently relevant to the whole concept: expansion in general; market force; cost (not linked to a relevant explanation).

Where correct points are made, they also need to be linked to **correct** explanations that are relevant to the question.

Q04

This question required candidates to focus on various aspects of environmental impact; relating their answers to the given example of a remote control and its packaging, and how they could be reduced by a life cycle assessment. Generally it was a well answered question. Many candidates were able to gain marks in most sections. The 'Use' section was the weakest where many candidates continued to use the energy theme.

A strong answer would be well structured, and thought through, in terms of which sections to put the relevant answers into. Possible responses could include covering: (recycled) material, and the amount of different materials used; simplification of process; renewable energy; durability, and capacity for repair; disposal / reuse; and the ability to dismantle.

Q05(a)

This question focussed on genetic modification, and required candidates to outline the **disadvantages** of modifying trees to grow faster. There was a huge range of

answers for this question (accessing all of the mark scheme); ranging from an excellent understanding of the topic, and its related issues, to no real concept of what genetic engineering is. Several answers suggested the negatives of all the reasons genetic engineering of wood is undertaken, rather than relating it to the fast growing in the question.

Responses were required to cover a number of the relevant points, for example: escape into the ecosystem; higher water demand; higher fertiliser use; lowering of soil quality; cost implications; ethical issues.

Q05(b)

This question focussed on the **advantages** to a company of computer-based scheduling as part of production planning. The question was answered successfully by many candidates as there was evidence that candidates had a good understanding of computer-based scheduling and were able to make successful connections to manufacture and productivity.

Q06(a)

This question focussed on the **advantages** of nuclear power as an alternative to fossil fuels, and required candidates to compare the two fuel sources. Generally this was a reasonably well answered question, with all aspects of the mark scheme accessed. There were many good responses, but few listed enough for full marks. Some candidates didn't fully understand the issues, or focused more on the fossil fuels. A small number of candidates focused on the disadvantages.

A well structured response might break the answer into bullet points, which helps to separate each point. Possible points might include: safety; fewer gases; high power output; abundant Uranium supply; pricing; reliable supply.

Q06(b)

This question focussed on electric powered vehicles for delivery, and their disadvantages when compared to the more commonly preferred diesel powered vehicles. The majority of the mark scheme was accessed by many candidates displaying a good awareness of the issues.

There a wide range of possible correct responses, for example: recharing is harder to find; the need to be charged more often; the limited range an electric vehicle may have; charging is time consuming compared to refueling a diesel vehicle; battery size BP8; CO2 emissions.

Examiner Tip

Candidates that bullet point or underline seem to score higher as they know how many possible scoring points they have written, rather than repeating the same point numerous ways.

Many candidates justify points when they don’t need to in an 'outline' question. Also, many candidates make a point, for example 'electric vehicles have a limited range' then go on to say that diesel vehicles don't have a limited range. This is a waste of precious exam time and paper space.

Q07

This question focussed on the technological advancements that have enabled miniaturisation and the **disadvantages** this has posed for society. It required candidates to understand the concept of miniaturisation, and then choose which aspects were relevant to the question. The range of answers seen covered all five headings in the mark scheme, and many candidates wrote quite a lot but struggled to express more than 3 or 4 points. Instead, tending to repeat themselves, or give several examples. Some candidates got side tracked by obsolescence, whilst this does have some overlap, it tended to distract them from generating a wider variety of valid points. Most candidate seemed to have a favoured area, be it related to size or social for example, so often failed to move on to other issues. Mobile phones were the favoured choice of most candidates to use as the theme on which to hang their responses.

A small number of candidates clearly did not understand the concept of miniaturisation, referring to making items like chairs and clothes smaller.

Paper Summary

Maximising marks

- Candidates should fully understand the trigger words in the question.
- Avoid unstructured answers. The use of bullet-pointed statements even in extended evaluate type questions; can help **some** candidates to score better marks.
- Questions will come from **all** parts of the specification so ensure that the candidates have covered **all** of the specification.
- Make sure that candidates use technical language where appropriate.

- Use past question papers and mark schemes as part of the preparation for the exam.

Exam technique

- If at all possible, candidates write within the specific spaces provided, these are linked to the number of marks available for answers.
- Candidates must think/plan **before** answering.
- Candidates should spend a moment reflecting on whether they have justified/given an example for questions which require it.
- If the candidate is word processing their answers, they should try to structure them so that they are in the same format as the question paper i.e. if there is a 'give **four**' type of question, then the answers should ideally be on four separate lines. Accurate numbering of the questions is essential as the examiner has no other reference as to which question the response is intended for.
- The most common 'fault' is repeating facts in different words, which wastes time and often results in unnecessary extra pages being used, for no additional marks gained.
- If an answer does exceed the space given, it is helpful if the candidate puts a clear indicator for the examiner.