



Pearson
Edexcel

Examiners' Report
Principal Examiner Feedback

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Pearson Edexcel GCSE
In Design and Technology:
(1DT0/1F)
Timbers

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Introduction

This was only the second sitting of this qualification following the cancellation of the summer series of 2020 and this paper was taken by a very small number of candidates nationally. The single exam paper would normally contribute 50% of the overall final qualification alongside the NEA however there was no NEA submitted for this series which has resulted in the award being based on the paper only. There were six different material specialist papers on offer, each with a common core in Section A which was worth 40 marks and a Section B worth 60 marks based on one of the six material areas: Metals, Papers and Boards, Polymers, Systems, Textiles and Timbers.

Comments on individual questions

Core

1ai A generally well answered question, with a good number of candidates offering a correct response, mostly related to good resistance to corrosion, all appropriate within the context of the question. It is important to stress here that the whole question, 1a, was about the properties of materials in the context of the product or component given in the table and therefore generic properties were not accepted.

1aii This question was a generally well answered question, with a good number of candidates offering a correct response relating to the material being waterproof or water resistant.

1aiii This question was not well answered by most candidates. There was some confusion regarding the stiffness of the material and its flexibility. In the context of the cereal box, the material needs to be stiff, some of which is due to the way the box has been folded and glued to form a structure. There was also some confusion over the use of the term 'can be printed on'. Most materials can be printed on but one feature of box board is that it is absorbent and takes ink well.

1aiv Many candidates here responded with the generic term 'strong'. Strong as a generic description of a material is not specific enough whereas good compressive strength is because it is focused and specific in the context of the set of steps, which are stood on and therefore withstand the compressive force acting on them.

1b This question tended to be well answered. Where candidates did not score well was due to them getting lost in calculating areas of the material. In some instances, candidates did not round their answer to the nearest penny, 2 decimal places.

1c A very poorly answered question with very little knowledge of polyester as a material and its advantages.

2a This question was well answered with most candidates being able to name a manufactured timber, with MDF being the most popular response. Where candidates gave incorrect answers, they gave the specific name of a hardwood or softwood.

2b A mixed set of responses were observed here. Few candidates scored both marks available given it was a response which required a reason for using SMA and linked justification of that reason. Where candidates provided a response worthy of at least 1

mark, it was mainly related to the SMA being able to be heated or that they can return to their original shape.

2ci This question was well answered by most candidates where they gave a clearly laid out response to the ratio calculation. Occasionally some candidates simply provided an answer in the space without showing any working out. When the answer is wrong, no marks can be awarded whereas if candidates show some working out, some steps or stages may be correct and some marks may be awarded. Therefore, wherever possible candidates should be encouraged to show all working out.

2cii Another well answered question with many candidates scoring full marks. Where partial marks were awarded candidates had not converted the units and so gave an answer in mm^2 rather than cm^2 . This is a great example where being able to see the working out enables partial marks to be awarded, based on Error Carried Forward (ECF).

2d This question was generally well answered with most candidates scoring at least 1 mark where they gave a reason for using copper without going on to provide a justification for using it. Most candidates could identify that copper was malleable, easily bent or that it was ductile. Where candidates scored full marks, it was due to candidates going on to say that once bent the copper could retain its shape.

3a Most candidates answered this question correctly. It is important to recognize that the question is about the properties of HIPS in the context of the product. Therefore, responses such as being waterproof are not correct given the hand controller has a grill on the front which would let water inside the handset. Most correct responses seen related to the material being a good electrical insulator. An insulator is not specific enough.

3b A generally well answered question with most candidates scoring at least 1 mark with many stating that the corrugated board has excellent impact resistance or that it will cushion and protect the product during transportation. Many responses lacked a good suitable justification for the second mark which is required on 'Explain' type questions.

3c Many candidates were not able to respond to this question suggesting little knowledge about the use of robotic materials. Where candidates did score a mark, it was mostly because of being able to say that the material could be used to sense or detect movements or pressure from the users' hands.

3d This question was answered well with many candidates scoring 2 marks. Candidates could calculate a percentage increase and fully showed their working out.

3e Many candidates scored at least 1 mark on this question with the most common response being related to the amount of potential waste being dumped or sent to landfill. Some responses related to the demand of materials required to make new controllers and the subsequent pressure on the extraction of finite resources.

4a At the most basic level this is a straight forward knowledge based question relying on recall. Many candidates correctly named a sensor that can detect heat as a thermistor.

4b Many candidates could score at least 1 mark on this question, mainly because of identifying that the uniform would be heavy or bulky to wear. Candidates who correctly linked responses went on to say that it would be difficult for the fire fighter to move around in for a long time or that the uniforms restrict mobility.

4ci Unfortunately, this part question was poorly answered by many candidates who did not identify or recognise that the 9V battery is made up from several single cells and so drew a single cell or did not label or identify any form of polarity.

4cii A well answered question where very many candidates scored well. In the few instances where candidates only scored 1 mark, they did so because they did not convert the 2 hours into 120 minutes.

4d Generally this was not answered well by most candidates, however, a good range of responses were observed. In the cases where candidates scored well, they provided responses that were well balanced discussing both advantages and disadvantages of video conferencing. Where responses were less good it was mainly due to a limited discussion about video conferencing, with some candidates simply restating what had been given in the question; 'meetings could be held around the world'.

Specialist material areas.

This report only focuses on the Timbers specialism. However, given the nature of the questions and the way the papers are structured, large elements of the Section B papers are identical or very similar and therefore the comments below could be applied to many of the specialist areas papers.

5a Many candidates attempted to sketch and annotate changes to the existing solution with many candidates gaining good marks on this question. In some cases, the sketches were very small, and the annotation was also small and very detailed making it difficult to read. Many candidates suggested some form of hinge or spring loaded mechanism in response to being able to remove an empty roll. Screws were often used to secure the holder to the wall with many candidates suggesting more than one screw to keep it level and to stop it from moving when in use. Drawers or shelves were often shown to store a spare kitchen roll. In some instances, a simple arm was shown but without any notes or details of the sizes it was difficult to determine whether a spare roll could fit on it.

5b A similar product was used on several papers in that the product was some form of vegetable or store display marker. Many candidates scored at least 1 mark on this question, often for identifying that the sign could be pushed into the soil or that it would be a little fragile and may break or get damaged by the rain for example.

6a This question was not well answered by many candidates. Relatively few gained full marks with many gaining 1 or 2 marks. Many candidates simply answered that ash was slow growing without any further explanation.

6b This question type was also a common type of question across all six papers in that it required candidates to use notes and sketches to show how some manufacturing process would be carried out. Common issues related to candidates just providing notes without any form of sketch or vice versa. Many candidates did not demonstrate sufficient knowledge of how to prepare timber before applying a varnish surface finish or did not

provide sufficient steps or stages in the process, rather just large chunks of information. Rub down wood and paint on varnish for example.

6c The quality of answers for this question was poor perhaps suggesting that candidates did not know what was meant by timber having been prepared PSE. The most frequently seen incorrect answers related to cost in that PSE timber was cheaper.

6d This question was not well responded to by many candidates where two different properties of ash were required in relation to the hammer handle. Strong was a commonly seen incorrect response with elasticity or flexibility being the most commonly seen correct answers.

7a This question is a basic recall question based on fixings used when joining materials. Many responses seen simply restated nail or round nail or provided more of a description focused on the shape of the nail head.

7b This question was not generally well answered. The candidates who achieved some marks did so for mentioning that using a template would save time when compared to marking out individually. When candidates did identify correct advantages, they often failed to explain/justify the advantage and so limited their ability to score higher marks.

7c This question was very similar across all papers and in some cases the dimensions of the shape were identical. Most candidates who answered this question performed well using range of mathematical methods. There were many full mark answers awarded with a small number of candidates having a correct answer with little or no clear working out. Some candidates went completely way off in their calculations but could be credited for sections of their answer that were relevant. Many candidates showed some understanding of the question and most converted the units correctly and could work out surface areas appropriately. The most commonly seen error related to the surface area of the semi-circle with candidates showing a calculation of a full cylinder and not dividing it by two.

7d The responses observed suggested that candidates were not fully familiar with the concept or process of using a bag press and as such many candidates did not score well on this question. Candidates scored marks in relation to even pressure being applied to the strips or that the process could be repeated using the same former.

8a A poorly attempted question by many candidates overall with many not understanding the focus of the question about the reasons for using different coloured stains. Most frequently seen correct responses related to making the toy more visually appealing and attractive and linked to increasing sales.

8b This question was in parts poorly answered by candidates. There seemed to be a lack of understanding about the concept of regular sections of timber. Marks were most commonly awarded for responses related to cost or the reduced need for cutting and machining the timber.

8c Most candidates could identify that seasoning reduces the moisture content of the timber and as such it helps to minimise the potential for twisting or moving later once in use.

8d Candidates responses for this question were varied. Some of the candidates repeated the information given in the question. Candidates struggled to access level 3 marks as they tended to state many simple concepts rather than developing and evaluating a few ideas. Where good responses were seen it usually involved candidates discussing the life span of the product beyond the time a child would play with it as they grew up and ideas related to cost given the toy is mass produced.