

Examiners' Report
June 2015

GCSE Design and Technology 5RM02 01

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Introduction

The format of the paper is now well established given that it has now been offered for the last five years. It is encouraging to see and to report that centres and candidates continue to use past papers and previous reports to guide their teaching.

On the whole candidates are improving in many areas of the specification and they are getting better at responding to the quality of written communication questions, where their writing shows a better structure. The responses to the design questions also appear to be improving with candidates showing many different ways of making sure they cover all of the design specification points, either by the use of numbers or little grids they write on to the question paper.

It would appear that fewer candidates wrote outside the boxes this year which is pleasing to report given the comments from last year. It must be emphasised that there is sufficient space to be able to score full marks using just the space provided on the paper.

Question 11 (a) (1)

This question was very well answered with the large majority of candidates giving the correct response.

Question 11 (a) (2)

The hole saw was not well done by the majority of candidates. In many cases, lots of references were made to drills.

Question 11 (a) (3)

This question was not well done by a majority of candidates. Most incorrect responses were related to marking out or to punching holes in materials. Many made reference to making indents but without any mention as to why.

Question 11 (a) (4)

The block plane was not identified by many candidates. A good number of candidates identified the tool as a plane in a generic sense but were not specific enough to be able to award the mark.

Question 11 (b) (i)

This type of question is basic recall in relation to being able to name a type of manufactured board from a description. Not many candidates were able to correctly identify the given description as hardboard.

Question 11 (b) (ii)

This question type and format was the same as the one before, 11bi, however in this instance more candidates were able to give the correct answer as plywood, a more commonly used material than hardboard.

Question 11 (b) (iii)

A good number of candidates were able to correctly identify that PVA is the most appropriate adhesive to join the two manufactured boards. Commonly observed incorrect responses were PVC and epoxy adhesive.

Question 11 (c) (i)

In many responses seen for this question, candidates gave preventative steps to be taken such as wearing goggles rather than giving health and safety issues such as damage to eyes and the potential hazard of fumes which were the two most common correct responses observed.

Question 11 (c) (ii)

This question was well done by the large majority of candidates who were able to name two different finishes that could be applied to the wooden shapes, with paint and varnish being the most common responses seen.

Question 11 (c) (iii)

This question was a 'Describe' type question and as such it required candidates to make a point and then develop it to say why or what the benefits or consequences are.

Given that this is a 'describe' type of question, it requires candidates to make a point and develop it to say why or what the consequences are.

(iii) Describe **two** advantages of laser cutting.

(4)

- 1 Laser cutting is a CAM process which reduces the presence of human error as it is aided by a computer and therefore the finish is more accurate. This also reduces material waste.
- 2 Using a laser cutter can allow very complex shapes to be easily made in a shorter time than if a human had to manufacture the complex shape.



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Examiner Comments

A good number of candidates were able to make comments about the process being accurate or every component being cut would be the same size.

This response scored 4 marks. The candidate made a number of points, but for at least one of them they were able to go on and develop and justify one of the points.



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Examiner Tip

When faced with a 'Describe' type question make a point and then try and use connectives such as 'which means' and 'therefore' which would mean that you are able to go on and develop your answer giving yourself the best possible chance of securing the second mark.

Question 11 (d)

Another 'Describe' type question. Each single describe is worth 2 marks and so here with **two** advantages being asked for a total of 4 marks are on offer.

(d) The shapes could have been made out of acrylic rather than wood.

Describe **two** advantages of using acrylic rather than wood.

(4)

1 Acrylic can come in a variety of different colours so no finish needs to be applied

2 Acrylic is much more light weight so it would be easier to carry.



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Examiner Comments

This candidate has made two good points, one about colour and one about weight and for both instances, they have developed each point using 'so'.



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Examiner Tip

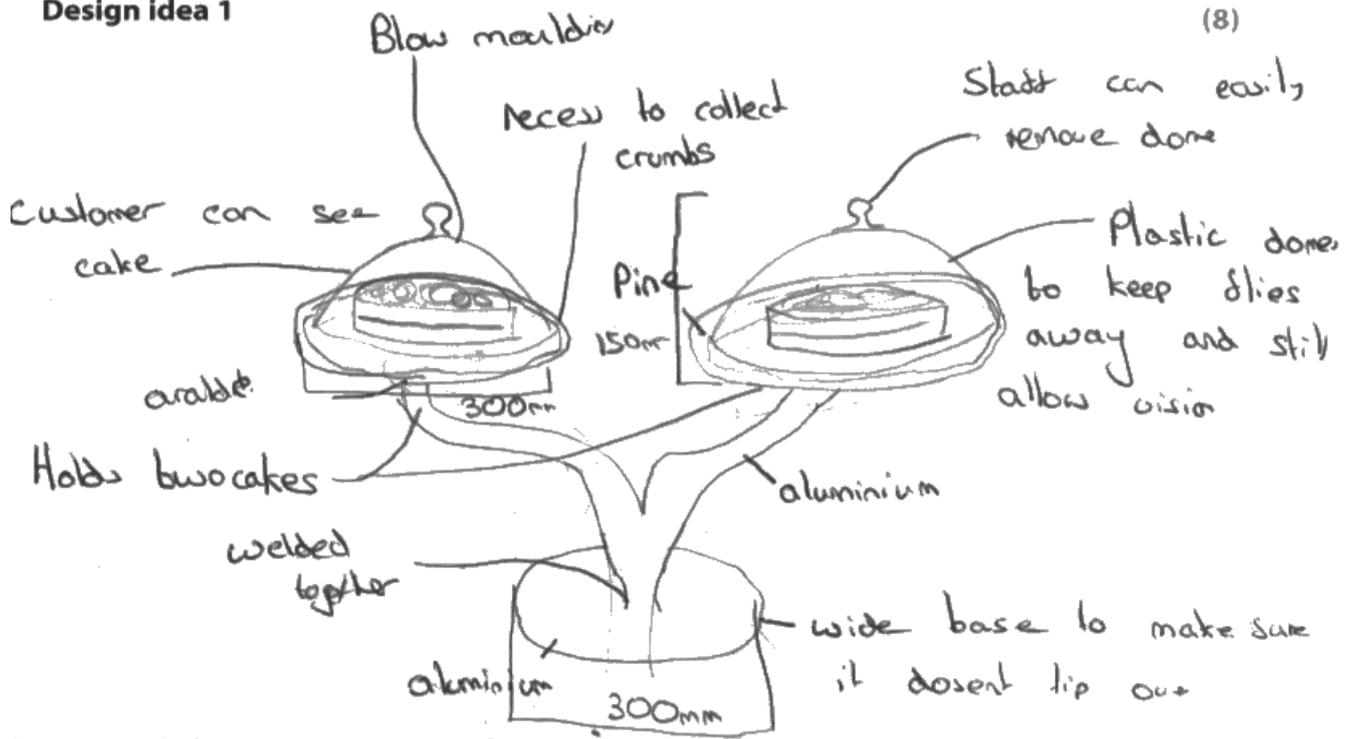
In this instance you need to be thinking about what you know about acrylic and then apply it in the context of the shapes for a child's puzzle, and as such colour and weight are both appropriate points.

Question 12

The design question is now very well established and candidates continue to improve with their level of response. The question requires two different designs to be proposed in response to a set of specification points.

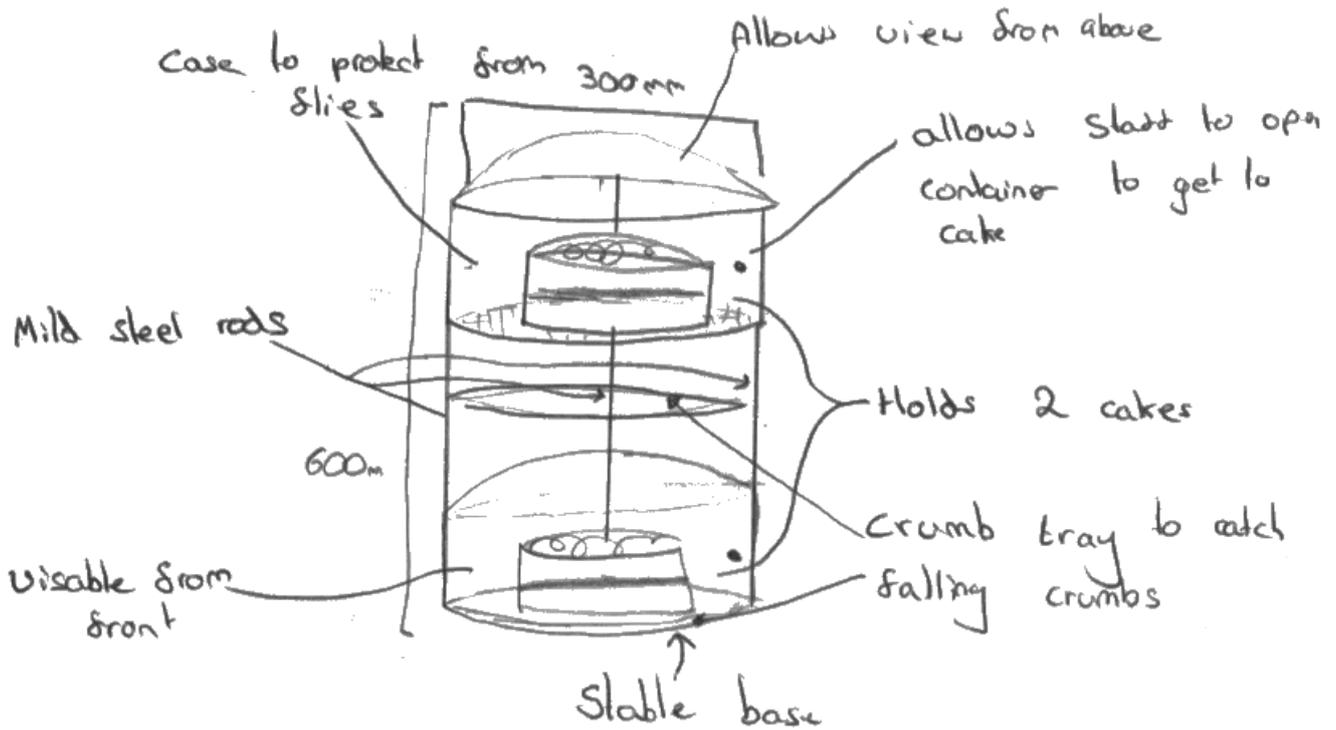
Design idea 1

(8)



Design idea 2

(8)



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Examiner Comments

The candidate has produced two good designs in response to the brief and has scored a total of 14 marks, 7 for each of the two separate designs.

Try to avoid writing too much, a simple word or two will often suffice.



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Examiner Tip

Be careful when the question asks for a stable base for example. If you simply label your design to say stable base you are not going to get the mark unless you say why it is a stable base, because it has a large flat surface in contact with the worktop.'

Question 13 (a)

This format of question has been used before and requires candidates to give an appropriate property and then to justify why the property is relevant.

- (a) Give **two** properties of polythene that make it suitable for the screwdriver handle.

For each property, justify your answer.

(4)

Property 1

~~The~~ Insulator

Justification

The user will not be electrocuted or burnt when touching a live wire etc.

Property 2

Tough

Justification → absorbs shock if it is dropped and

~~makes the handle more grippy~~ which means it is easier to hold ~~and~~ ~~won't fall out of hands~~ ~~and~~ ~~break~~



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Examiner Comments

The candidate has given two correct properties of polythene in the context of a screwdriver handle and then they have given an appropriate justification.



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Examiner Tip

It is important here with this type of question that the properties you select are appropriate to the context, in this case a screwdriver. Given that it could be used by an electrician, the fact that it is an insulator is critical so as not to electrocute the user. It also needs to be a tough material given it is used in a hard environment and at times may well be hit with a hammer.

Question 13 (b)

This type of question should be quite straightforward in that it basically requires a definition of the term hardness.

(b) The blade of the screwdriver must be hard.

Describe what is meant by the term 'hardness'.

(2)

the ability to withstand abrasive wear and indentation



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Examiner Comments

The candidate has given an excellent 'textbook' definition of the term hardness in that it contains both elements, resistant to abrasive wear and indentation.



ResultsPlus
Examiner Tip

There are a number of properties that should be learned in terms of definition including toughness and elasticity for example.

Question 13 (c) (i)

This type of question format has been used for many years now. It relates to how the selected product is successful in meeting the specification points.

(c) Explain why the screwdriver is successful in meeting the following specification points.

(i) Be safe to use

(2)

The material used on the handle is an insulator & so if the screwdriver hits any electrical wiring, the user will not get shocked



ResultsPlus
Examiner Tip

There are a number of properties that should be learned in terms of definition including toughness and elasticity for example.



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Examiner Comments

It is important here to make a point and justify it, given it is an 'Explain' type question. What is key to this is that you do not repeat the question since you will not get a mark. For example, 'The screwdriver is made from an insulator which means it is safe to use. This is only worth 1 mark because it states that the material is an insulator. Saying it is safe to use is a repeat of the question and as such is worth no mark.

Question 13 (c) (ii)

The same applies here from the previous part question 13ci, in that it is an explain type question and great care should be taken not to repeat the question.

(ii) Be easy to grip

Because it is ergonomically designed, so⁽²⁾
it is easy to fit into, ~~and grip~~ and
be gripped by the user's hand.



ResultsPlus Examiner Comments

Many candidates made reference here to the shape of the handle and how it fitted into the hand. Another popular response related to the texture or 'dimples' that were on the handle.



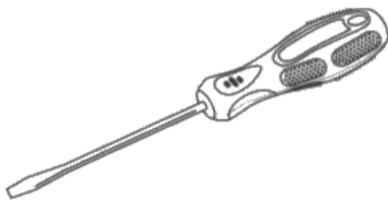
ResultsPlus Examiner Tip

Again be careful here not to repeat the question which will not gain you any marks.

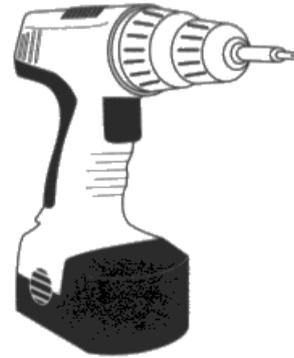
Question 13 (d)

There was a full range of marks scored here. Candidates have improved their response style writing in full sentences and making good comparisons rather than a simple list of points and observations about the two products.

*(d) The drawings below show two different types of workshop tool.



Screwdriver



Cordless drill

Evaluate the screwdriver compared with the cordless drill in terms of:

- materials and components
- function

(6)

Cordless drill will be able to do the job quicker than the screwdriver as the drill is electrical and will rotate quicker as the hand screw driver needs someone to constantly ^{turn} it. The screwdriver ~~will~~ takes up more energy which means the cordless drill will be able to do a better job as this is because as the turn person gets tired the screw driver won't do the job to the best that it can but with the cordless drill you hold the button and the job is done well and quick taking no effort and time. As the screw driver is made from a metal it will possibly corrode but as the cordless drill is made from ~~plastic~~ thermoplastics it is less likely to corrode. This suggests that the screw driver is more for indoor work while the cordless drill is for indoor and outdoor work. The screw driver and cordless drill both have good grip and hands can easily be wrapped around both of them.

equipment have that rubbery material for grip. This makes both equipment/tools safe to use.



ResultsPlus Examiner Comments

This candidate scored the full 6 marks. They have addressed both criteria requested and have made comparisons between the two different types of tools.



ResultsPlus Examiner Tip

It is really important with this question to address the specification points given in the question. This year it was 'User requirements and Function'. It is important that you know what is meant by these terms and even more important that you address them rather than about any other areas such as form or sustainability for example since you will not be given any credit.

Question 14 (a) (i)

This was quite a straight forward question especially so given the subject of templates was also examined last year. A large number of candidates were able to identify at least one advantage of using a template, the most common responses being saving time or that all components would be identical. There was some confusion amongst many candidates that the use of a template somehow means that items will be cut out better.

(a) (i) A template is used to mark out the salad servers before cutting out.

Give **two** advantages of using a template to mark out the salad servers.

(2)

- 1 All of the Salad Servers will be identical and made to the same standard.
- 2 It speeds up the process.



ResultsPlus Examiner Comments

The question was a 'Give' type and as such only requires a short statement such as the one given by the candidate here. This response scored 2 marks.

Question 14 (a) (ii)

This was a basic question testing simple recall of thermoplastics. Many candidates were able to identify at least one correct thermoplastic, the most common one being acrylic, with others such as ABS and HIPS being popular.

Question 14 (a) (iii)

This question was not answered well by most candidates. Where candidates had done better it was often due to the fact that they had made some good points but they did not go on and fully develop or explain their answers and as such they limited the marks that they would be able to score. The most common type of responses seen related to the fact that thermoplastics could be recycled or re-heated without going on to say what the benefits of this are.

(iii) The salad servers are heated in an oven and then shaped over a former.

Explain **two** advantages of using a thermoplastic for the salad servers rather than a thermosetting plastic.

(4)

- 1 If the shape of the salad server isn't precise, it can be re-heated and shaped again. Thermosetting plastics cannot be reheated.
- 2 Thermoplastics can be recycled, and so is much more sustainable than thermosetting plastics.



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Examiner Comments

This candidate has made two good points and has gone on to say what the benefits are for each of them and as such they have scored 4 out of 4.

Question 14 (b)

This question should have been done better than it was. It is a specifically named process from the specification and should be taught or demonstrated in class. Results of laminating can be quite effective and it requires very little equipment in comparison to other industrial processes.

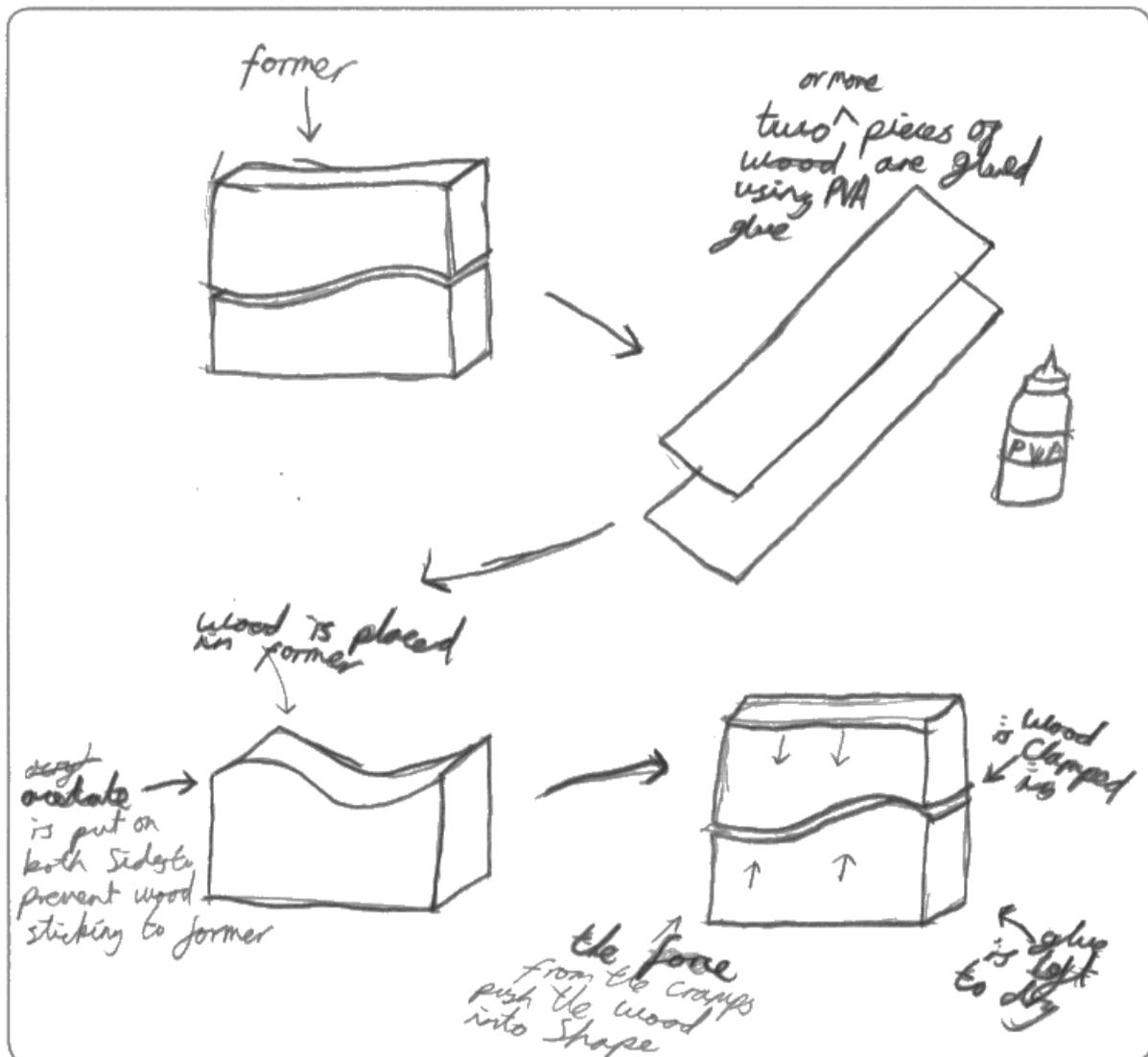
Here too many candidates described the process of laminating a poster or picture through a laminating machine using encapsulation.

Those candidates who knew what the process was were able to score very well here.

(b) The salad servers can be laminated from thin layers of wood.

Use notes and sketches in the space below to show the laminating process.

(3)



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This candidate has used both notes and sketches to convey the process of laminating



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Examiner Tip

Where possible use good simple sketches and notes to convey the information

Question 14 (c)

This question was not completed as well as it should have been. Generally questions which relate to the environment are well done.

Many candidates were able to secure one mark for identifying that wood was either more sustainable than plastics or that wood would decompose over time, but they did not go on to fully explain the point as the question asked for.

Question 14 (d)

This final question is quite open and general.

Candidates need to be considering both the advantages and disadvantages of internet marketing and sales to be able to fully access all the marks available. If they do not then they will limit the mark range.

***(d) Discuss the advantages and disadvantages to retailers and consumers of using the internet for marketing and sales.**

(6)

Because more people shop online ~~are~~ there is a large consumer market for marketing and sales. It is easier for people to ~~are~~ advertise their products and sell them. Also they can record ~~as~~ how many items that they are selling and to which areas so they can focus on those areas. The internet can help marketing because you can email someone advertising items and they wouldn't have to travel just to find out what their product ~~is~~ looks like. Also the internet is worldwide so the products can be sold to millions more people. However selling on the internet can mean that customers might be deceived in what they are buying. Also it can reduce the sales of small local businesses because the major corporations are selling better things. Also

the internet can mean consumers are spending more money than they should and they could become bankrupt easily. Overall it is better because consumers can buy whatever they want from wherever because some things wouldn't be sold in some areas if it wasn't for the internet's marketing and sales.



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It is essential that you write here in full and complete sentences and not give lists or a series of bullet points. You need to make sure that you consider both sides of any argument to ensure that you give yourself the best possible chance of securing full marks.

The candidate here has scored 6 marks for their response which is a full and comprehensive account of the advantages and disadvantages of the internet for marketing and sales.

Paper Summary

Based on the performance of this paper, candidates and centres are offered the following advice:

- They must ensure that the whole specification has been taught and covered either through practical demonstrations in class or by making use of skills and techniques through short practical tasks.
- Candidates must be confident and secure with their knowledge and understanding, especially in areas such as materials, tools, processes, properties and manufacturing techniques.
- Candidates should be encouraged to try and use a pen to go over design ideas or diagrams they generate so that they are more visible.
- The use of additional sheets should be discouraged for planning or for rough work.

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