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Examiners' Report
June 2017

GCSE Design and Technology Graphic Products 2 5GR02 01

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June 2017

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Introduction

The format and structure of this question paper is now well established. It is clear that teachers and candidates are familiar with the layout and have used past papers and previous examiners' reports during preparations for this examination.

On the whole candidate performance is improving on the two questions that assess QWC (Quality of Written Communication) by providing answers that have more structure.

Candidates' level of response to describe and explain type questions is showing improvement, with many now providing appropriate linked responses.

There was again evidence of candidates not selecting a response for one or more of the questions in the multiple choice section at the start of the paper. For this section, candidates are again reminded that it is good practice to select an answer, even if they are unsure.

Candidates are reminded that the space made available for giving the answer has been specifically designed for length of response that is needed to gain maximum marks and that additional pages or space are not required to gain maximum marks.

Question 11 (a) (ii)

Most candidates achieved one mark for stating either 'measuring objects' or 'drawing straight lines'. A minority of candidates mistook the image for a safety rule and provided responses related to cutting with a craft knife. Such responses gained no marks.

Question 11 (a) (ii)

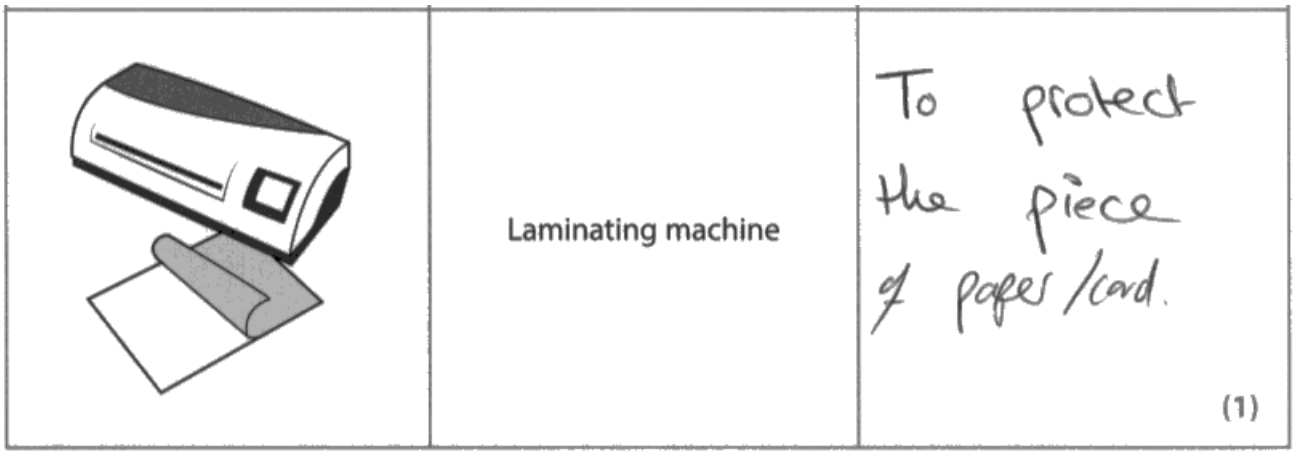
There were very few wrong answers to this question. Where answers were wrong it was usually because the candidate had missed out reference to eyes in their answer, simply stating 'for safety' or 'for protection'. It was clear that candidates were familiar with this item of PPE.

Question 11 (a) (iii)

Almost all candidates were able to identify a pillar drill from the provided image.

Question 11 (a) (iv)

Although the majority of candidates were able to provide a correct answer, some described the purpose of lamination, for example 'to give a shiny finish', 'to protect paper' or 'make paper more durable/ last longer', rather than the use of the laminating machine itself, therefore they achieved no marks. Other candidates failed to gain marks by stating 'laminating paper' or 'used for laminating'.



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Examiner Comments

This response attracted no marks. The response describes what lamination is used for as opposed to the use of a laminating machine.

ResultsPlus
Examiner Tip

When a question asks for the use of a piece of equipment, responses should consider the use of the equipment rather than the reasons the process is used.

Question 11 (b) (i)

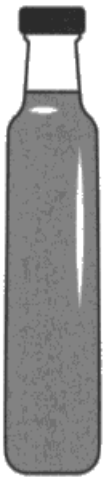
Candidates tended to achieve at least one mark for this question. The most popular answers seemed to be 'to meet demand' ('lots are required' or 'lots are needed' being typical responses) or 'cost effectiveness'. Some candidates gave answers that related to using the bottle for other products in addition to/ rather than the oil. Occasionally candidates incorrectly described the qualities of glass instead of talking about mass production.

Some candidates are still using 'fast and cheap' as generic ' fallback' answers.

This is not good examination practice and candidates should avoid giving such vague answers.

(b) A mass-produced glass bottle containing oil is shown below.

The bottle of oil would be sold in supermarkets.



(i) Give **two** reasons why the glass bottles are mass-produced.

(2)

1 lots are made to sell.

2 so they are identical.

ResultsPlus
Examiner Comments

This response has attracted two marks. The candidate has given two reasons why glass bottles are mass produced; although these are not verbatim from the mark scheme they are 'candidate-speak' alternatives.

ResultsPlus
Examiner Tip

For 'give' type questions it is good examination practice to provide answers that are either single word or short phrases. There is no requirement to provide a description.

Question 11 (b) (ii)

The majority of candidates achieved two marks for two appropriate and valid points. Answers tended to represent most of the mark scheme, although 'being inert', 'transparency/ clarity' and 'water resistance' seemed to be amongst the most popular answers.

Question 11 (b) (iii)

A generally well-answered question with candidates showing a good understanding of the benefits of recycling, including the impacts on natural resources and energy use.

The most popular responses tended to involve reduced waste, although candidates gave answers that reflected all of the points on the mark scheme. Where candidates failed to achieve marks it tended to be as a result of either giving an answer in absolutes, such as suggesting that recycling leads to 'no pollution' rather than 'less pollution'.

Candidates also had a tendency to repeat the same point – for example 'less emissions' and 'less pollution'. Candidates should avoid giving answers that are fundamentally the same.

(iii) Give **three** benefits to the environment of being able to recycle glass.

(3)

1 Reduces space taken up in landfills.

2 Prevents harm to wildlife (eg: by eating the glass).

3 ~~Saves money~~ Reduces the use of finite resources (oil) in glass manufacture.

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Examiner Comments

The candidate has included three valid and varied responses to the question. Each answer attracts one mark, therefore full marks have been awarded.

ResultsPlus
Examiner Tip

Where a range of reasons or benefits are asked for, try to make sure that there is variety in the reasons, and they are not similar to each other.

Question 11 (c) (i)

Only a small proportion of candidates achieved full marks for this question. There was much confusion over the properties of pine, with generic statements such as pine is stronger, lighter, cheaper or more likely to protect the contents than MDF. These responses attracted no marks.

Some answers described the better look of pine or more natural pine being aesthetically pleasing without specifically mentioning grain.

Some candidates provided two responses related to aesthetics which also limited their achievement.

Those candidates who achieved higher marks showed a technical reasoning of this product in relation to the materials chosen, such as resistance to liquid.

(i) Explain **two** advantages of using pine for the box rather than MDF.

(4)

1 Pine can be stained and varnished for a nigh quality aesthetic.

2 Pine is also more strong and sturdy making it a better Material than MDF

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Examiner Comments

This response has been awarded three marks.
There is a linked response relating to varnishing the pine and it being aesthetically pleasing.
A third mark is awarded to the candidate for reference to pine being 'sturdy' which is an appropriate synonym for 'durable' in this case.

ResultsPlus
Examiner Tip

Avoid generic responses such as 'cheaper' or 'stronger' when a question asks for advantages of one material rather than another.

Question 11 (c) (ii)

The most popular responses provided by candidates tended to relate to the transparency and aesthetics of the acrylic. This may have been led by the use of the word 'clear' in the question.

Typical answers considered 'being able to see the product inside' (for one mark) but frequently this was not expanded upon, for example 'to increase sales'; not always followed up by the second part (for the second mark).

Some candidates indicated so that 'you know what you are buying' i.e., brand identity. Some candidates also stated that acrylic would not break easily. Others described it as 'shatterproof' – i.e., will not leave shards or splinters.

(ii) Explain **two** reasons for using clear acrylic for the front of the presentation box.

(4)

1 So that the product can be seen through the arqylic so the customer can see the contents.

2 Acrylic is ridgid and so will slide onto the pine box easily without losing shape.

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Examiner Comments

This response has been awarded two marks. The candidate has identified that 'the product can be seen through the acrylic' for one mark.
A second mark has been awarded for reference to 'will slide into the pine box easily'.
Marks are awarded positively; however as no expansions or justifications have been provided the candidate has only achieved one mark per response.

Question 12

Many candidates achieved between 6 and 8 marks for at least one of their designs. Some of the better candidates showed how each specification was answered by numbering the responses on their design, often supporting these with annotations that provided fuller details of how the design(s) met the specification point. This is good practice and candidates are encouraged to take this approach.

Many students were able to gain 6 marks immediately on this question; however there were many repeated responses between design 1 and 2.

Almost all candidates produced ideas that were capable of holding four cones of chips, although a small minority presented designs to hold '4 chips'. Different approaches were required for each idea, therefore a linear arrangement could not be repeated and gain credit for both designs.

Bullet 2 and 5 proved difficult for the students to include either within their sketching work or through annotation. Although some students did attempt to include a measurement of the holes which would hold the food, often the stated measurement would be too large and the hole would not support the cones correctly, and so no mark could be awarded. Bullet 5 was rarely outlined either by annotation, with the mark being awarded solely on the drawn evidence.

In general, students showed a wide range of understanding of workshop materials and processes; however in some cases it appeared that students were not thinking through their choices and combining inappropriate materials and processes – for example, suggesting line bending on a product made of MDF.

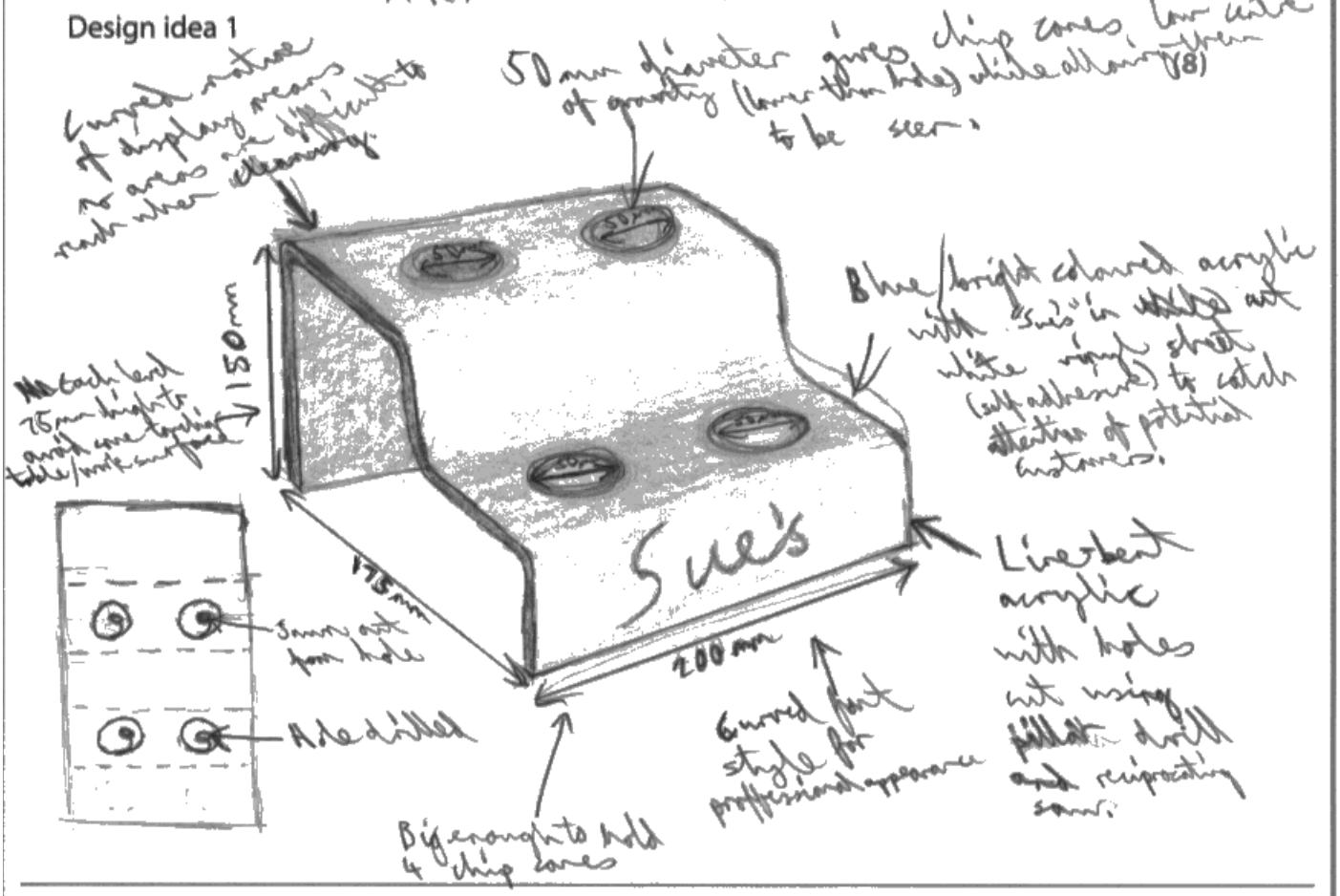
Some candidates included commercial production and printing methods such as flexography, lithography and injection moulding for either the display method or the processes available in school, which meant zero marks could be awarded.

The higher marked responses tended to include a 3D pictorial sketch of the stand, supported by further sketches from the side of the display stand which clearly outlined how the chips would stand and how sturdy the base was.

The weaker responses of this question were mostly sketched in 2D, therefore it was difficult to determine the sturdiness of the base, and so marks could not be awarded.

"ART-DECO INSPIRED DESIGN"

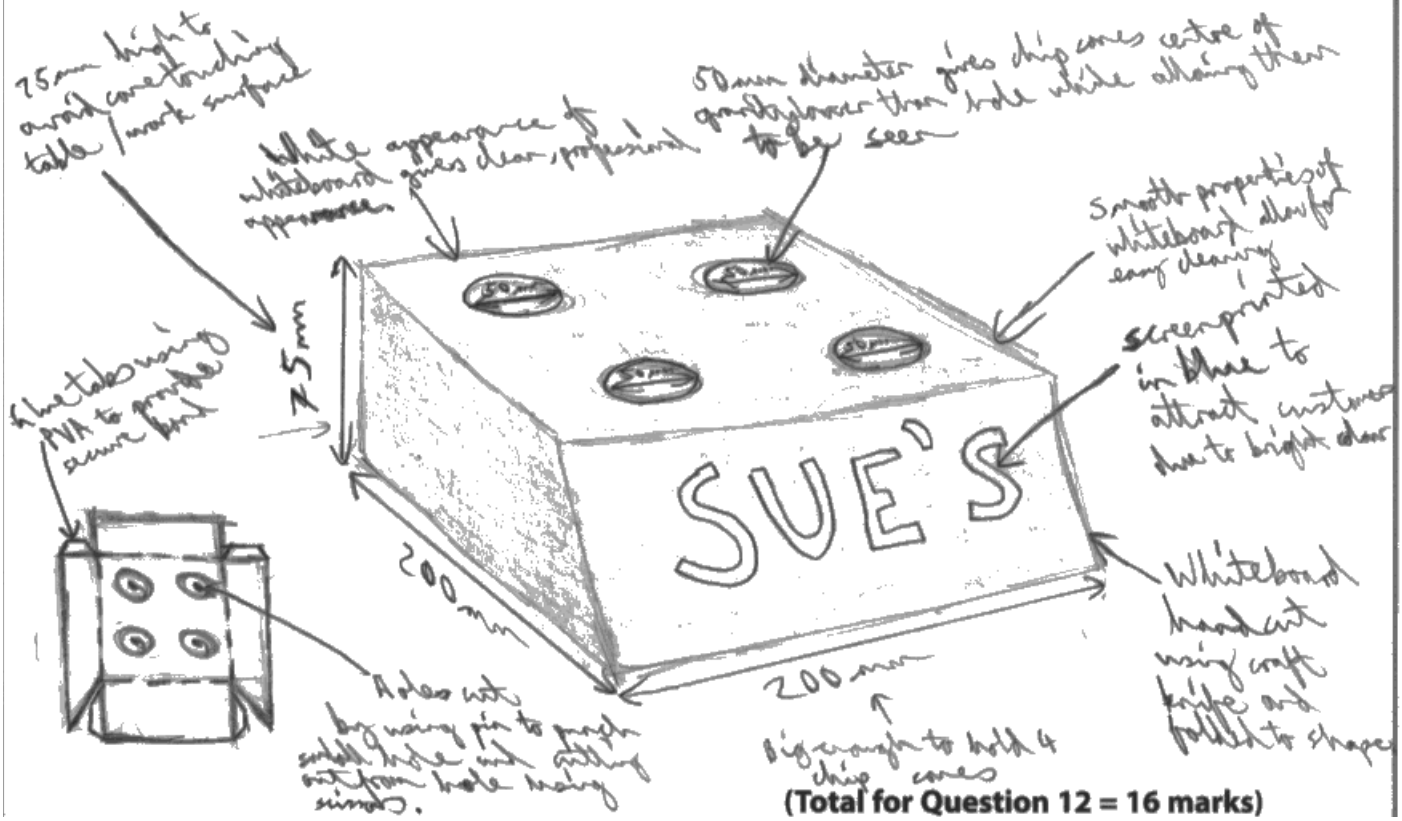
Design idea 1



(8)

"SIMPLE DESIGN"

Design idea 2



(8)

(Total for Question 12 = 16 marks)

ResultsPlus
Examiner Comments

The candidate has been awarded eight marks for idea one and five marks for idea two.

The designs are clearly represented, with concise and appropriate notes and annotation to explain how each design fulfils the specification requirements.
The candidate has lost some marks in the second design for repetition of the layout of how the chip cones are held (2 x 2), the approach taken to support the chip cones (both holes) and the large base in both designs.

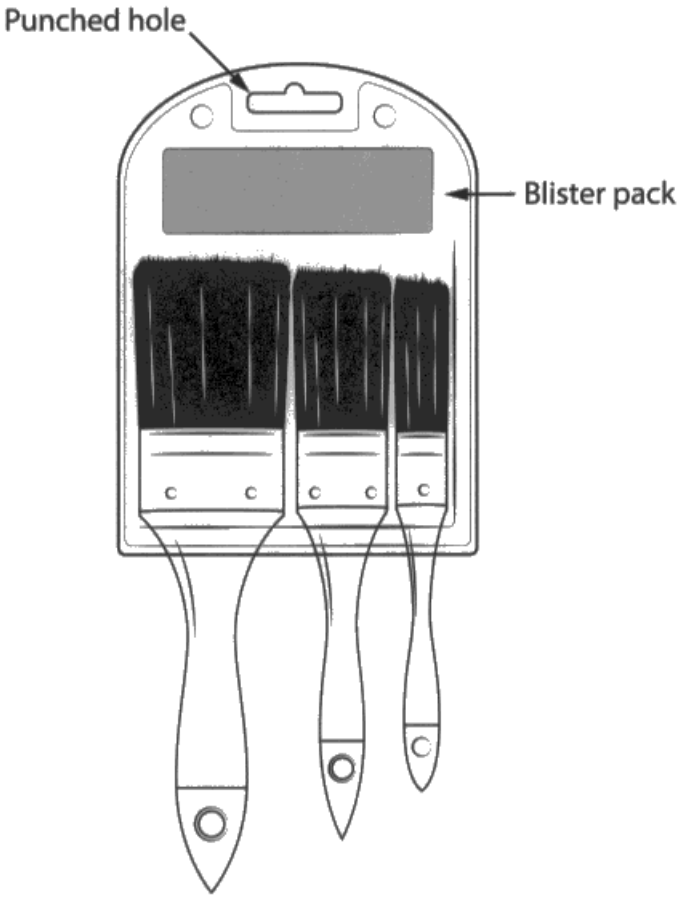
ResultsPlus
Examiner Tip

Ensure your two designs are completely different so the materials and methods used to achieve each specification point in the 1st design are not used in the 2nd design.

Question 13 (a) (i)

Many candidates gave one-word answers which is appropriate for this type of question. The majority of candidates achieved two marks for this question, although there were some responses that failed to attract marks, for example stating impact resistance/ tough and durable as answers; however these were on the same marking point and therefore only gained one mark.

13 The drawing below shows a set of paintbrushes in a blister pack.



(a) (i) The blister pack has been vacuum formed from rigid polystyrene (PS).

Give **two** properties of rigid polystyrene that make it suitable for the blister pack.

(2)

1 lightweight

2 Durable

ResultsPlus
Examiner Comments

The candidate has identified two valid properties of rigid polystyrene that make it suitable for the vacuum formed blister pack rather than simply properties of rigid polystyrene.

ResultsPlus
Examiner Tip

As always, candidates should avoid using generalised answers such as 'strong' when asked to give properties of a material.

Question 13 (a) (ii)

Candidates performed relatively poorly with few responses including a fully explained advantage and disadvantage. Many responses talked about mass production, cost and speed but without specifically mentioning manufacturing and showed a lack of development in their answers. In some cases, it was clear that students were referring to school based vacuum forming as opposed to commercial. A number of answers referred to the properties of polystyrene rather than the vacuum forming process, showing a lack of knowledge of industrial scale.

(ii) Explain **one** advantage and **one** disadvantage of using vacuum forming to manufacture the blister pack.

(4)

Advantage

It can be shaped perfectly to fit the shape of the product.

Disadvantage

Fine details can't always be made, and trying to form very detailed ones wouldn't work or would be too expensive.

ResultsPlus
Examiner Comments

The candidate has been awarded two marks.
One mark has been awarded for the advantage of being able to be shaped perfectly to fit the shape of the product.
One mark has also been awarded for 'the being unable to produce fine details' as a disadvantage.

ResultsPlus
Examiner Tip

To gain full marks, candidates must ensure that a lead point is expanded upon with a justification or deeper explanation.

Question 13 (b) (i)

Many candidates found this question to be a challenge, with only a small proportion achieving full marks. Where marks were awarded this tended to be as a result of discussing variations on the lack of space in the packaging.

(b) Explain how the blister pack is successful in meeting the following specification points:

(i) keeping the brushes together

(2)

It is made to the exact shape of the brushes so it is virtually air tight, so the brushes do not come loose. It is also easily glued to the backing using many joining techniques, PVA, ~~contact~~ epoxy resin

ResultsPlus
Examiner Comments

Where a question asks candidates to explain how a design or product meets a specification point, then the response must link directly to the specification point.
The candidate has stated that it is 'made to the exact shape of the brushes' linked to 'the brushes do not come loose'. There are some further comments which add no further justification and to an extent are inaccurate; however the candidate is not penalised for this.

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Examiner Tip

Be concise in your answer, avoiding unnecessary words.

Question 13 (b) (ii)

Although a large proportion of candidates' answers provided links to the transparency of material rather than ease of display, in a majority of these cases candidates also made a reference to the 'euroslot/ punched hole'.

Very few students talked about the way the brushes were balanced.

A significant proportion of candidates achieved full marks for this question.

(ii) easy to display

(2)

It has a punched hole to hang on a display unit.

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Examiner Comments

This candidate has provided a short and concise answer to the question. There is an appropriate link between the punched hole and the ability to hang the package on a display unit.

ResultsPlus
Examiner Tip

As with all describe/ explain questions try to make best use of linking words or phrases.

Question 13 (c)

Candidates achieved a wide range of marks on this question, with the full range of marks being awarded. In the majority of cases marks were awarded at the lower end of the range, with only a small proportion achieving full marks.

Many candidates showed a lack of understanding of the technical terms used in the question, meaning some candidates included completely irrelevant information within their response. Some candidates simply compared the difference between the two types of packaging, often focusing on the aesthetic side of things.

Typically answers referred to how strong or durable each of the packages were.

Some candidates also referred to how easy each of the packages could be damaged.

A number of responses related to sustainability but too many candidates considered the use of plastics to be reusable and not bad for the environment. Some candidates appeared to confuse 'sustainability' with 'durability'.

The scale of production aspect produced fewer responses as many related to the 'process' of vacuum forming/ cost/ expense.

In some cases, students gave long lists of points with little or no explanation, which limited achievement to the lower mark range due to the lack of development in the answers and inability to show more complex QWC.

The space provided for the answer is more than sufficient; where candidates continued their answer onto separate paper, they rarely gained any further marks, often simply giving repetition and 'padding'.

Evaluate blister pack A in comparison to the boxboard sleeve B in terms of scale of production and sustainability.

(6)

Blister pack A allows 3 brushes to fit inside the packaging meaning more brushes can be sold and transported, making a bigger profit. Boxboard sleeve can easily slide apart, increasing the chances of the bristles becoming damaged. It only holds one brush, which means it can't gain a bigger profit and is less are transported at one time - which increases costs. Moreover, B. boxboard

is recyclable; making it more sustainable to the environment. ~~Vacuum~~ Vacuum formed & sleeve would be plastic; ~~so~~ therefore not all plastics are recyclable which means ~~it~~ if it ~~is~~ isn't recyclable, more landfills are used increasing the dangers to habitats ~~and~~ ~~litter~~ and an eyesore to the environment. ~~There~~ ~~is~~ Some plastics don't decompose, they don't corrode; therefore they cannot ~~be~~ disappear ~~& which allows increases~~

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Examiner Comments

This answer includes a consideration of both scales of production and sustainability. The candidate has provided some discussion of each of these with regards to both types of packaging. The response is well structured and has achieved a mark in the middle mark band.

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Examiner Tip

This type of question takes practice to be able to achieve the high level marks. Candidates must include all of the aspects given in the question to achieve full marks; in this case scale of production and sustainability are required to achieve higher marks.

Question 14 (a) (i)

Candidates tended to perform well in this question with many making valid points relating to the ease of printing on paper compared to aluminium.

Some answers said that aluminium cannot be printed on, which was a common misconception held by a large number of candidates.

(a) The coloured information label is wrapped around the tube of paint.

(i) Give **one** reason why the information label is applied separately to the tube of paint.

(1)

It is easier than printing directly onto the tube.

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Examiner Comments

This candidate has achieved one mark. The response correctly notes that it is easier to print onto (the label) than aluminium. The response is concise which is good examination practice.

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Examiner Tip

The use of comparative statements, such as 'easier', should only be used if another process or material is made reference to.

Question 14 (a) (ii)

Candidates tended to perform very well in this question with a wide range of marks being awarded.

The most popular answers tended to relate to being 'flexible to squeeze the paint out' and 'non-reactive'. Some candidates made reference to aluminium being air tight.

(ii) Explain **two** reasons why aluminium is used for the paint tube.

(4)

1 It's resistant to rust which could ~~contam~~ differ the colour of the paint if the rust comes into contact with it.

2 when thin, aluminium is flexible which will allow the user to squeeze the tube to empty its contents.

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Examiner Comments

A concise answer that relates to the specific use of aluminium for a paint tube. The candidate has given two detailed explanations that each gain two marks.

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Examiner Tip

Questions get more difficult towards the end of the exam paper and require higher level answers. In this instance two different explanations are required for full marks.

Question 14 (b)

Overall, this was a well-answered question. A common response was the large amount of lids injection moulding could produce and the 'fit' of the lid onto the tube. Some students did mention mass production; however this was often not in enough detail to gain the mark. Some of the weaker answers included reference to speed of the production and the cost, with little further development, gaining zero marks.

(b) The screw cap lid is mass-produced by injection moulding.

Explain **two** reasons why injection moulding is a suitable process for making the screw cap lids.

(4)

1 Injection moulding allows ~~mou~~manufactures to produce objects with intricate shapes ; including teeth to screw the cap in place.

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Examiner Comments

This response has only included one reason for using injection moulding for the screw caps. There is an appropriate link between the ability to produce intricate shapes and the screw thread in the cap. The response is concise and does not include any 'padding'.

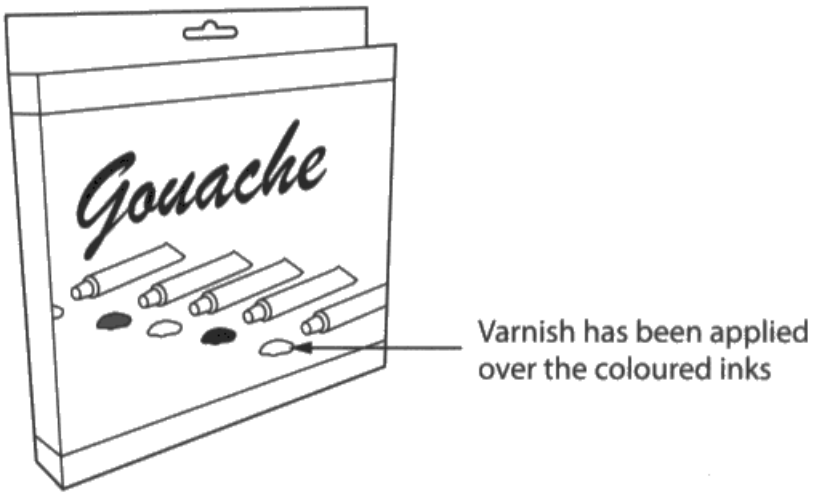
ResultsPlus
Examiner Tip

To gain full marks, candidates must ensure that the point and the explanation are linked.

Question 14 (c)

The majority of candidates performed well on this question. The aesthetic appeal and the quality of the product were common responses, along with 'stand out' appearance of the varnished parts of the packaging. It was pleasing to note that some candidates were aware of the concept of 'spot varnishing'.

(c) Sets of different colours of paint are often sold in a box like the one shown below.



Parts of the graphic image on the front of the box have been finished with a layer of varnish.

Explain **two** reasons why parts of the graphic image on the box have been finished with a layer of varnish.

(4)

1 To improve the aesthetic qualities of the box and attract more customers into purchasing the product.

2 To mirror the effect the paints will give if purchased.

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Examiner Comments

This response has attracted three marks. The candidate has given a linked response that relates to the improved aesthetic properties of the box and increasing sales to achieve two marks. A further mark is awarded for 'mirroring the effect the paints will give'.

ResultsPlus
Examiner Tip

To achieve full marks for 'explain' questions candidates must make sure their answers include a valid initial point linked to a justification.

As with all describe/ explain questions try to make best use of linking words or phrases.

Question 14 (d)

This question solicited a wide range of responses but by far the majority were in the lower mark bands, with only a small proportion providing a mark band 3 answer.

Many candidates spent time (correctly or incorrectly) describing the screen printing process; this was time wasting, irrelevant to the question and attracted no marks. Generic answers were also common.

A large proportion of responses were rewarded for reference to the long process/drying times and the ability to print on a variety of materials (some mention printing on products as opposed to materials, and credit was given for these). Other common advantages included reference to 'being able to print on uneven surfaces' or 'less detailed images are often produced'.

*(d) Discuss the advantages and disadvantages of commercial screenprinting.

(6)

- Screenprinting can be used on many different surfaces which makes it suitable for lots of different products, like fabric or ceramic objects.
- It can be used on curved ~~surface~~ surfaces, unlike gravure and flexography.
- ~~Dese~~ The design is consistant each ~~access~~ time it is used.
- It is very cheap to do after the initial costs for the equipment.
- Screenprinting also gives ~~given~~ clean, sharp edges.

- It is not suitable for designs with lots of colours, as each colour needs to be printed seperately.
- It is quite a slow process so it can't be mass produced.
- The initial cost of the equipment can be high.

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Examiner Comments

This response has achieved four marks since the candidate has identified some aspects of the discussion (ability to print on different surfaces, not being suitable for images with lots of colours) with associated developments, to show some understanding of the discussion. The candidate has used D&T terms accurately, showing some direction and control in the organising of material.

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Examiner Tip

Candidates are encouraged to be precise and focus on the point of the question – some very long answers were given which often did not attract marks in the higher band. Furthermore in order to achieve marks in Band 3, candidates must communicate ideas effectively, using a range of appropriately selected D&T terms and organising information clearly and coherently. Using a tabular approach does not allow candidates to demonstrate that they use the rules of grammar with considerable accuracy.

Paper Summary

Based on their performance on this paper, candidates are offered the following advice:

- Describe/ explain type questions – candidates must support their answers in order to access the full marks available and are advised to practise using linking words or phrases.
- Candidates should pay more attention to the questions that assess Quality of Written Communication (QWC) and learn to be concise with their answers.
- There is enough space provided for each question in the question paper; there should be no need to include further additional sheets for answers.
- Avoid using words from the stem (question) in answers. For example in question 11aiv repetition of the word 'laminating' attracted no marks as this was given in the question.
- Prepare for the exam by revising the whole specification, including the processes, materials and technical drawing aids that are listed

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