



**General Certificate of Secondary Education
June 2012**

**Design and Technology: 45601
Resistant Materials**

(Specification 4560)

Unit 1: Written Paper

Report on the Examination

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Administration

It is pleasing to note that the majority of centres complied with AQA's instructions relating to the collation, packaging and dispatching of scripts.

A significant number of candidates contravened the regulations with regard to the use of the colour of ink employed to record their answer. Black ink or black ball-point pen should be used for written answers and pencils and coloured pencils should be used for drawings.

General

There was substantial evidence of the use of the preliminary material by centres when preparing their candidates for the examination. It was encouraging to see that centres had embraced the subtle change in this question which required them to research the work of Charles Rennie Mackintosh in addition to small storage devices.

The use of the preliminary material is intended to give the candidates 'ownership' of their paper. It allows them to produce real and valid responses based on work done in the weeks before the examination. Where centres had made good use of the preliminary material their candidates invariably went on to produce good quality designs.

Teachers should emphasise good examination techniques to their candidates, in particular; the need to read and re read each question carefully before attempting it. They should also be taught to use any 'spare' time at the end of the examination to carefully go through both the questions and their answers.

Question 1

This question was well answered. Many candidates gained full marks by producing three relevant specification points for a jewellery storage device. They invariably went on to expand their answers to provide suitable explanations.

Candidates did not achieve any marks for repeating answers or by repeating information that was given in the design brief.

Question 2

It was clearly evident that the majority of candidates had worked with the preliminary material.

The majority of candidates produced 5 design ideas for a jewellery storage device. Most were able to provide at least 2 designs that were in the style of Charles Rennie Mackintosh. The more able candidates produced 5 significantly different ideas that display creativity, flair and originality. Weaker candidates' ideas were obvious and simplistic.

Question 3

Materials and finishes

Candidates were required to provide specific details of relevant materials and suitable finishes for their chosen design. Candidates lost marks by simply naming generic materials.

Method of construction

A greater number of candidates are now attempting this part of the question. Candidates gained marks by naming a suitable method of construction and providing brief details about the process.

Sizes and design features

Many candidates outperformed this part of the question by giving numerous details relating to the features of their design. They also gained marks for adding realistic dimensions to their design. It should be noted that where a candidate does not indicate a specific unit of measurement, the examiner will assume they are using millimetres.

Question 4

Many candidates simply listed features of their design without making any value judgements, or simply stated that their design fulfilled the design requirements, making no further comment. Teachers should ensure that their candidates are aware that marks are only awarded where an analytical point has been fully explained.

Question 5

- a) This part of the question was answered very well. The candidates obviously understand the principles of the 6Rs.
- b) Many candidates gained some marks by correctly identifying that glass bottles and plastic bottles can be recycled or reused. Fewer candidates went on to give further details about the environmental impact of using these materials. Weaker candidates related sustainability to the strength of the products.

Question 6

Stage 1

The majority of candidates were able to gain 2 of the 4 marks available by giving details of how they would mark out the spice jar holder. Few candidates achieved full marks by addressing the issue of the spice jar holder having to be being batch produced.

Stage 2

Most candidates were able to gain 2 of the 4 marks available by giving details of how they would cut and shape the spice jar holder. Few candidates achieved full marks by addressing the issue of the spice jar holder having to be being batch produced. Candidates who chose to use CAM to manufacture their spice jar holder tended to give simplistic answers.

Stage 3

Again, the majority of candidates were able to gain 2 of the 4 marks available by giving details of how they would bend or join the spice jar holder. Fewer candidates achieved full marks by giving a detailed response.

Stage 4

This part of the question was answered well with many candidates giving correct details of how to apply a relevant finish to the spice jar holder. The use of varnish was the most common correct response.

Stage 5

Candidates provided a variety of ways in which to produce the 'Spice jar' text. Many candidates correctly chose to etch the text by a laser cutter.

Question 7

- a) There were a variety of answers offered for the names of the two saws. Electric saw, band saw and scroll saw were amongst the incorrect answers given for the jig saw. Tenon saw and hacksaw were offered as incorrect answers for the coping saw.
- b) Candidates gained some marks for showing that both saws could cut curved lines. Few went on to fully describe the process.
- c) Most candidates knew that blades would need replacing when they were blunt or broken. Many candidates went on to give information relating to this being cost effective as you would not need to buy a new saw.
- d) A wide range of responses were given in answer to this part of the question. Most candidates gave details of how the jig saw was faster and easier to use because it was powered by an electric motor. Many correctly suggested that the coping saw was better at cutting fine detailed pieces of work.

Question 8

This question was not very well answered by the majority of candidates. Many candidates failed to attempt an answer or made incorrect responses.

Thermochromatic plastic: This was often confused with thermosetting plastic.

Carbon fibre: Generally well understood, with light and strong being offered as its properties, and F1 cars and tennis racquets being chosen as correct uses.

Polymorph: Few candidates knew of this material.

Motion control gel: A number of candidates gained marks by correctly identifying that it had lubricating properties.

Question 9

- a) Many candidates knew of a suitable adhesive for gluing the numbers to the wooden clock face. Weak candidates incorrectly suggested PVA.
- b) Most candidates correctly explained why they had chosen this adhesive. Strong and quick drying were the most common correct responses.
- c) Many candidates correctly identified 1 or 2 safety precautions that they would need to take when using the adhesive. Many went on to qualify their answer.
- d) Candidates gained some marks for giving details as to how they would glue the acrylic numbers to the clock face, but few gave sufficient details for the awarding of full marks.

Question 10

- a) Candidates gained some marks for giving details of the sort of information you would need to research but few gained full marks by suggesting what type of research should be carried out.
- b) Many candidates gained some marks by making reference to the fact that if designers did not protect their ideas then they would be stolen by others and that they would lose money. Few went on to give details of how a designer would protect their ideas.
- c) Most candidates gained some marks by suggesting that checks would be made to ensure that the customer received a high quality product. Few candidates went on to give details of the types of checks that would be carried out.

Question 11

This was answered significantly better compared to last year's question. Candidates showed good knowledge of the use of CAM. Many went on to provide detailed responses and gained good marks. A number of candidates confused CAM with CAD and failed to gain marks. This question also examined the candidates Quality of Written Communication. This varied considerably. Teachers and candidates are reminded of the need for good English, particularly in this question.

Mark Ranges and Award of Grades

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