OCR
RECOGNISING ACHIEVEMENT

GCSE

Design & Technology (Resistant Materials)

General Certificate of Secondary Education **GCSE 1956**

General Certificate of Secondary Education (Short Course) **GCSE 1056**

Report on the Components

June 2007

1956/1056/MS/R/07

Oxford Cambridge and RSA Examinations

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REPORTS ON THE COMPONENTS

Report on the Components taken in June 2007

1056/1956 D&T: RESISTANT MATERIALS

Chief Examiner's Report

The vast majority of candidates attempted all the questions on Papers 1-4. Candidates appeared to have sufficient time in which to answer the questions. As in previous years there was great variation in the quality of response. There were some excellent answers to the design-type questions in all papers and evidence of good product analysis activities being undertaken in preparation for the themed question, "Garden Gates".

There are, however, areas of the specification content where examiners felt that candidates could improve. Some of these areas are basic to this specification and include:

- properties of materials and their working characteristics;
- practical knowledge of the processes associated with a variety of resistant materials, including methods of joining;
- the use of correct technical terms for tools and processes;
- practical knowledge and understanding of CAD-CAM;
- industrial practices, including commercial production methods, jigs and formers and quality control;
- quality of communication, in terms of clarity of 2D and 3D sketches.

There was a wide range of coursework projects undertaken ranging from individual recognition of a real design opportunity for a specified client or user group to class set projects where candidates all made a similar product.

Most coursework folders covered the assessment objectives on 25-30 sheets and it was encouraging to note the absence of over-decorated borders and double mounted text for which no marks are available.

- Objective 1 was generally well done and assessed appropriately by centres.
- Objective 2 included some good product analysis but candidates did not always carry out or record basic research such as the shape, size or quantity of items to be stored in a storage device for example. There was an overall improvement in the relevance and use of questionnaires and specifications including references to batch production.
- In Objective 3 the quality of illustration was variable. Many candidates included at least one CAD drawing in their ideas. Evaluation of ideas was often superficial and the final chosen idea was not always highlighted.
- Objective 4 is the weakest objective. Testing and trialling must be relevant to the candidate's product and details of a control device to assist batch production are essential elements of this objective.
- In Objective 5 the best planning included details of the stages of manufacture linked with tools and processes and references throughout to health and safety requirements. The majority of products were wood based although there were examples of some exciting work produced using metal and plastic.
- In Objective 6 the best evaluations included reference to the user group and relevant testing with conclusions. Very often the candidate's work was superficial and over marked.
- Presentation marks were generally awarded appropriately.

Coursework 1056/03 and 1956/05

General

The moderation process ran relatively smoothly this year and the majority of centre marking was within the tolerance agreed by OCR at the standardisation meeting.

It is however, vital that centres devote the necessary time and effort required in completing the paper work and submitting it on time. With the increasing use of electronic MS1's, there were a noticeable number of centres forgetting to send the completed CSF forms to moderators. There was also a significant number of mathematical and transcription errors. It is the responsibility of the school to check the information sent to OCR and the moderator.

Candidates embarked on a wide range of resistant material focused products ranging from individual recognition of a real design opportunity for a specified client or group of potential users, through to class set projects where all candidates made a similar product such as a storage container or a mechanical toy. It was encouraging to see many centres combine the use of CAM with more traditional workshop skills enabling the candidates to use a range of tools, equipment and manufacturing processes.

The majority of coursework folders covered the requirements of the 6 assessment objectives on 25/30 A3 sheets. Some centres preferred to use A4 design sheets as they are easier to store. The use of over decorated borders and doubled mounted text is now, thankfully, a thing of the past. Many centres have the facilities for the candidates to print A3 coloured sheets where photographs, drawings and text are 'professionally' presented. (It is a requirement of this specification that the coursework sheets are made available for moderation rather than an electronic version.)

Objective One
Generally well done and assessed correctly. Candidates are recognizing the need for a quality product that meets the needs of the identified user group.

Objective Two
There was some good work in this section. Many centres are encouraging candidates to do full product analysis exercises on similar products where the key designing and manufacturing issues are discussed. However, too many candidates still fail to carry out relevant and appropriate research which is vital to the success of their design work in objective 3. For example, the size and shape of standard toiletries to be stored in a bathroom cabinet or the size and spindle length of the mechanism used in the designing of a clock. There was a noticeable improvement in the relevance and use of questionnaires. Specifications have improved and many now include the acknowledgement of a control system for batch production. Only the higher achieving candidates were able to summarise their research effectively.

Objective Three
The quality of illustrations of ideas was variable. Thumbnail sketches were often used to kick start thinking. Some attempted the use of colour and most had attempted at least one CAD drawing. Evaluation of ideas was often superficial and rarely referred to the needs of the user. Higher achieving candidates were able to display problem solving skills through their drawings and clear annotation.

Some candidates still do not highlight their chosen idea and fail to check it against the specification generated in objective 2.

Objective Four
This is still the weakest objective where many candidates fail to access the top marks. It is important that the material testing and construction trialling all relates to the product the candidate is making, and as a result, decisions are being made and justified.

There is still a significant number of centres that make no reference to the construction and use of a control device during objective 5 or the purchase of pre manufactured components. Candidates should be encouraged to give full details about the final product with any modifications that have occurred.

Objective Five
The planning prior to making varied considerably between centres. High achieving candidates, using various means, communicated the proposed stages of manufacture, listed the tools and equipment and emphasised health and safety requirements which were all directly related to the construction of their product. However, far too often general statements about health and safety were made.

Candidates' realisations were largely wood based, although some exciting design work in metal and plastic was seen by the moderators. Some centres continue to make products of a large physical size whilst others concentrate on those which are more easily managed by the candidate.

Objective Six
Many candidates clearly attempt this objective at the last minute. Many evaluations were superficial and make little reference to the specifications. Only the higher achieving students thought about the product in terms of the user group and conducted detailed, relevant testing with meaningful conclusions. Many centres were too generous in the marking of this objective and marks were reduced due to the lack of evidence of evaluating the success of the control device or suggesting improvements.

Presentation
The 5 presentation marks were awarded appropriately. The best folios were excellent, logically arranged often with each objective and subsection clearly presented. In general most centres spent the right amount of time on each section.

Paper 01

General comments

The majority of candidates attempted all the questions and achieved marks throughout the paper.

There are areas of the specification where candidates could show improvement, including:

- properties of resistant materials, wood, metal and plastics;
- technical information relating to tools, processes and constructions;
- practical knowledge and understanding of CAD-CAM;
- overall quality of communication in terms of clarity of sketches and accuracy of annotation.

Comments on specific questions

Question 1

Many candidates achieved good marks for this question with part (a) and (b) (i) proving difficult.

(a) Most answers included reference to a sander and only a few named a plane as the correct tool to make the sides of the hardwood flat.

(b) **(i)** The correct name of the cramps was known by only a small minority of candidates.

(ii) Most candidates understood the purpose of the scrap wood used with the cramps.

(iii) Most candidates understood the purpose of a waterproof adhesive to glue the strips together.

(c) Most candidates used glasspaper, usually referred to as sandpaper, to make the surface of the chopping board smooth.

(d) Most candidates gave reasons why a surface finish would not be applied because of the contact with food or the risk of the finish becoming chipped.

(e) **(i)** Many candidates provided sensible designs for handholds involving drilled holes sawn and filed to shape. However, there were many candidates whose designs included additional materials. The question specifically stated that extra materials were not to be used.

(ii) Generally, candidates who designed an appropriate handhold also named two tools used in its production.

Question 2

(a) The best reasons for using aluminium for the metal supports were its ability to be bent to shape and its resistance to corrosion. Many candidates gave reasons for which no marks could be given, namely 'strong' and 'cheap'.

(b) This part tested candidate's knowledge of basic tools when working with wood and metal.

Most named some type of saw or file to shape the wooden ends. Almost all used a drill to make the holes. Many named a hammer, mallet or a vice as necessary tools to help bend the supports to shape. The cleaning the surface of the metal proved more difficult with many incorrect answers. Abrasives used with metal were not well known.

(c) There were some excellent sawing jigs designed by candidates. The bullet points in the question are there to help candidates focus on the important features of the question, especially where there are large mark allocations available. The mark scheme rewarded each of the bullet points listed. Many good designs used a hole or 'cradle' to hold the rod. Some designs were modified bench hooks and would work really well. The best methods of ensuring sawing to the same length were by means of a 'stop' or saw cut that acted as a guide. Unfortunately, many candidates failed to achieve maximum marks due to poor quality sketches and lack of accurate technical annotation.

Question 3

This question gave candidates the opportunity to demonstrate their knowledge and understanding of working with acrylic plastic.

(a) Most candidates knew the purpose of a chinagraph pencil, wet and dry paper and polishing compound.

(b) This part tested candidates' knowledge of making a simple bend in acrylic. The bullet points in the question were designed to help candidates by asking them to say how they would heat the plastic, use a former and retain the shape while the plastic cooled. Many candidates knew about a strip heater, line bender or oven. Fewer saw the need for a former and many were unable to provide a means of holding the plastic while it cooled other than in their hands.

(c) Many candidates were unable to provide good reasons for the wooden photograph frame being more expensive than the plastic frame. Many simply stated that wood was more expensive than plastic. The best answers were that the wooden frame involved more processes, it would take longer to make, therefore increasing labour costs.

Question 4

(a) The vast majority of candidates gave examples of where a jig or template could be used in the production of the milk bottle holder.

(b) Many candidates showed how the covers could be made to lift up by means of metal pegs or dowels. Sometimes it was difficult to award marks because the quality of sketching was very poor.

(c) It was pleasing to reward answers that demonstrated an understanding of CAM. Many correct answers involved the use of a vinyl cutter or engraver / router. These answers reflected a practical knowledge of using the equipment. There were many answers that reflected no practical experience at all.

(d) The majority of answers referred to the need to make the milk bottle holder weather or waterproof.

(e) Many candidates explained how the milk bottle holders could be given to a household or milkman and then they could get the necessary feedback. Many candidates simply wrote how they would evaluate the product when what was required was 'field' testing and trialling.

Question 5

(a) The best answers for properties of beech included that it was tough or close grained. Many candidates simply stated 'strong'. It was evident from answers that many candidates have a poor knowledge of working properties of resistant materials.

(b) Most candidates understood that a designer would need to make sure that there were no sharp edges or that the firing area should be enclosed.

(c) Many candidates provided some details for a method of supporting the pinball machine at a given height. The most common design involved the use of a hinge and a small wooden block. The main reason why some candidates did not achieve maximum marks was due to the poor quality of sketches and notes to communicate their ideas effectively.

(d) The best constructions used to join the base to the sides of the pinball machine were a groove or rebate. Candidates were given maximum marks if these were drawn correctly but named incorrectly. Other joints include pinning/ screwing / dowelling and gluing from underneath. Many candidates failed to consider the 6mm thickness of the plywood base and showed it dowelled from the outside into its edge.

(e) There were many superb answers to this part of the question. A spring was used to provide the firing mechanism. There were many examples of excellent drawing skills showing the spring in the correct position and incorporating some sort of cap to the firing pin to enable it to strike the ball.

Paper 02

General comments

There were opportunities in this paper for candidates to demonstrate their designing capabilities combined with technical knowledge. While there were some outstanding answers provided there are some underlying weaknesses in the overall standard of the answers provided.

There are areas of the specification where candidates could show improvement, including:

- properties of resistant materials, wood, metal and plastics;
- technical information relating to tools, processes and constructions;
- practical knowledge and understanding of CAD-CAM;
- overall quality of communication in terms of clarity of sketches and accuracy of annotation.

Comments on specific questions

Question 1

(a) The vast majority of candidates gave examples of where a jig or template could be used in the production of the milk bottle holder.

(b) Many candidates showed how the covers could be made to lift up by means of metal pegs or dowels. Sometimes candidates gave more information in their sketches and notes than was required for the 2 marks available.

(c) It was pleasing to reward answers that demonstrated an understanding of CAM. Many correct answers involved the use of a vinyl cutter or engraver / router. There was also evidence of the increased use of lasers in centres. These answers reflected a practical knowledge of using the equipment. There were, however, many answers that reflected no practical experience at all.

(d) The majority of answers referred to the need to make the milk bottle holder weather or waterproof.

(e) Many candidates explained how the milk bottle holders could be given to a household or milkman and then they could get the necessary feedback. Many candidates simply wrote how they would evaluate the product when what was required was ‘field’ testing and trialling.

Question 2

(a) The best answers for properties of beech included that it was tough or close grained. Many candidates simply stated ‘strong’. It was evident from answers that many candidates have a poor knowledge of working properties of resistant materials.

(b) Most candidates understood that a designer would need to make sure that there were no sharp edges or that the firing area should be enclosed.

(c) Many candidates provided some details for a method of supporting the pinball machine at a given height. The most common design involved the use of a hinge and a small wooden block. The main reason why some candidates did not achieve maximum marks was due to the poor quality of sketches and notes to communicate their ideas effectively.

(d) The best constructions used to join the base to the sides of the pinball machine were a groove or rebate. Candidates were given maximum marks if these were drawn correctly but named incorrectly. Other joints include pinning/ screwing / dowelling and gluing from underneath. Many candidates failed to consider the 6mm thickness of the plywood base and showed it dowelled from the outside into its edge.

(e) There were many superb answers to this part of the question. A spring was used to provide the firing mechanism. There were many examples of excellent drawing skills showing the spring in the correct position and incorporating some sort of cap to the firing pin to enable it to strike the ball.

Question 3

(a) The most popular reason for using aluminium for the shoe rack was that it is lightweight.

(b) Most candidates stated sensible items of research that needed to be found out: the number of shoes, sizes or style being the most common.

(c) The majority of candidates did not provide practical methods for joining the rail to an end strip. There needed to be some modification to the Ø20 tube before some type of screw could be fitted. Unfortunately most methods involved drilling a hole in the 20 wide end strip and inserting the Ø20 tube. This would not work. There were some excellent methods with a plate welded to the inside of the tube or some form of 'bung' attached to the end strip.

(d) There were many excellent answers showing modifications to the shoe rack to allow it to extend. Most successful designs involved a telescopic principle. For maximum marks the method required some form of 'stop' to prevent the shoe rack from extending too far and weakening its rigidity.

Question 4

(a) Many candidates gave advantages of using a vacuum formed tray over wooden partitions. The most popular related to speed of production, easier to clean and individual space for each tube of paint.
Candidates need to understand that one word answers such as 'cheaper', 'faster', 'quicker' will not receive marks.

(b) Candidates either knew what was meant by the term 'ergonomics' or not. Most correct answers referred to the tray indents that would allow the tubes of paint to be removed.

(c) Only a minority of candidates drew a recognised fastening. Hinges were not appropriate.

(d) There were many good designs for storing four paintbrushes inside the lid. Some designs involved the use of wooden blocks with holes drilled for the brushes while others repeated the vacuum formed tray. Most candidates achieved marks for this question but many failed to achieve maximum marks because the brushes would not fit along the length of the lid or because the methods of retention were often vague: the use of elastic and velcro without consideration of how these could be fixed to the resistant materials.

Question 5

This question offered candidates the opportunity to respond using sheet materials of their choice.

(a) The bullet points were designed to help candidates focus on the important aspects of the design on which to concentrate. Each of these bullet points was allocated marks. Many candidates managed to show how the torch could be supported. There were some excellent designs that relied upon the 'springy' property of plastic or the use of tube to effect support and quick release. It was more difficult to provide the tilting mechanism for the torch. The best solutions involved the use of screws or nuts and bolts. However, a combination of poor communication skills and weak technical knowledge meant that few candidates achieved maximum marks.

(b) Even if candidates did not produce a completely functioning design to part **(a)** they could still achieve maximum marks by providing a control device in part **(b)**. There were some good answers relating to injection moulding and some jigs and formers that could be used. Very few candidates achieved marks for this question.

Paper 03

General Comments

The vast majority of candidates attempted all of the questions and were able to gain marks throughout the paper. There was, once again, clear evidence of very good time management by most candidates.

There are areas of the specification where candidates could show improvement, including:

- improved communication skills including basic 2D and 3D sketching.
- knowledge of correct technical terminology for tools and processes;
- knowledge of basic joining methods of similar and dissimilar materials;
- knowledge of basic properties and working characteristics of commonly used resistant materials especially those of metals;
- knowledge and understanding of methods and processes related to quantity production;
- knowledge and understanding of CAD and of CAM.

Comments on Individual Questions

Question 1

(a) (i) Well answered with the most popular answer being Acrylic.

(ii) Easy to work and / or shape being the most common correct responses. Candidates were rewarded for a correct point in (ii) even if part (i) was incorrect.

(b) A very good range of appropriate tools were given. Many candidates identified an appropriate saw with many candidates suggesting a file. Many candidates identified correct marking out tools.

At this level in the paper both sandpaper and glasspaper were rewarded as it was felt that as this technically poor practice was undertaken in a small number of centres it was therefore unfair to penalise candidates.

The most common incorrect response was “saw”.

(c) Generally candidates suggested gluing the sections together with a number correctly suggesting Acrylic Cement. Both answers were rewarded in addition to screwing or riveting where some detail was given.

(d) The majority of candidates correctly identified Batch Production as the suitable production method.

(e) The majority of candidates identified a template as the method of marking out with a fewer number suggesting an appropriate material for its manufacture or explaining how it would be used for the award of the second mark.

(f) The majority of candidates made appropriate suggestions to make the scraper more comfortable to hold. The most popular method was finger indentations and rounded edges.

Question 2

(a) Many candidates correctly drew the housing joint. However the sketching capabilities of some candidates hindered them from providing evidence of sufficient clarity to gain marks.

(b) Dowelling and gluing and screwing were the two most popular correct answers.

(c) Try square or marking gauge were the most common correct technical responses for the marking out with a chisel or a router for the cutting out the housing joint.

(d) The easiest method of cutting the two sides out at the same time was the most popular correct answer. A significant number of candidates misread the question and suggested methods of marking out the two uprights failing to notice that question 1 part (e) was about marking out.

(e) The height, number and weight of the books to be housed were the three most popular answers. Reference to the possible location of the finished book shelves were rewarded but references to the materials might be available and what tools and equipment might be used were not rewarded.

(f) A back to stop books falling off was the most seen response with pleasingly few suggesting some form of “decoration” as an improvement.

Question 3

(a) Steel, stainless steel, aluminium and brass were the four most popular correct answers with very few candidates suggesting copper which would be too soft in this application. Most candidates gained a mark for this question.

(b) The fact that it would be easier and also safer to drill prior to bending was identified by a significant number of candidates. Reference to the fact that it would be easier to fold was the most popular incorrect answer.

(c) The correct answers of a tap and die respectively for parts (i) and (ii) were stated by very few candidates. Where candidates knew it was a tap and die but were unable to positively state which tool was for which process were rewarded with one mark. Those candidates who stated the use of a lathe were also rewarded.

(d) A good number of candidates gained a mark for some form of plastic or rubber “washer” but very few gained the second mark for detail of how it might be fixed or held in position. A smaller number of candidates failed to grasp the surprisingly simple concept of the damage to the table.

(e) Many candidates added grips or tommy bars to the end of the threaded rod to make the operation easier for a user. Very few however provided sufficient detail to gain the 2nd or 3rd marks for this part of the question. It is suggested that all candidates are shown how to focus on the marks in brackets [?] at the end of each question and where there is more than a single mark on offer how to address each mark to avoid them self penalising. Grabbing the end of the threaded rod with pliers or a mole wrench were the two most popular incorrect answers.

Question 4

This question is about Industrial Practices, CAD/CAM and the effects of D&T in Society.

There is a significant amount of confusion in candidate's minds about the advantages and disadvantages of both CAD and CAM. Additionally there is some confusion as to the differences of CAD and of CAM.

(a) Being able to change, save and share design ideas were the three most popular answers with, pleasingly, some candidates able to suggest the advantages of linking with CAM thus aiding the design and making activity. Many candidates incorrectly suggested speed of cutting out, making and mass production as advantages of CAD.

(b) One word answers were prevalent in this part of the question and failed to gain rewards. Stating "quick" or "accurate" in an unrelated manner cannot be rewarded.
The correctly identified improvements to the rate of production and the accuracy of components were the two most popular answers with the quality of cut (finish) clearly identified by many candidates.

(c) Reference to the set up costs and the expensive nature of the equipment were the two most popular answers. A good number of candidates also reflected on the issues surrounding the need to train personnel which was pleasing. Stating using one word "expensive" failed to gain a mark. A minority of candidates referred to the running costs which was not asked for.

(d) The correct answer of "Conformité European" was rarely given. References to standards in Europe were rewarded but clearly the majority of candidates did not understand the significance of the symbol.

(e) Some excellent explanations of the use of the barcode and the uniqueness of the data stored and its uses were seen. However many candidates failed to explain fully to gain the second mark despite clearly knowing how they were used.

(f) An excellent range of poignant reasons why recycling is difficult were seen. Many candidates gained two marks for two different reasons given.

Question 5

This is the Themed question with pre-release materials being sent to centres prior to the examination. It is very pleasing to note that, once again there was very clear evidence that centres had undertaken quality product analysis activities in relation to this pre-release material.

(a) Very well answered with most candidates correctly identifying Welding or brazing.

(b) This part of the question was very poorly answered. Even where it was evident that centres had researched and well prepared candidates the correct identification of a scroll was limited to a small minority of candidates. Often candidates suggested the function rather than naming the part.

(c) The structural, supportive function of the cross brace was clearly understood by the majority of candidates.

(d) Aesthetic enhancement and protection of the end grain of the post were the correct answers and the majority of candidates gained a mark for this question with reference to the aesthetics being the most popular answer.

(e) The understanding of the reasons for applying a finish to steel were understood by the majority of candidates with aesthetic improvements and protection from weather / prevention of rust being the two most popular answers.

(f) The majority of candidates scored well on this question but with a significant number failing to gain the mark for hanging the gate on the correct post, the right hand post as shown in Fig. 7.

Paper 04

General Comments

The vast majority of candidates attempted all of the questions and were able to gain marks throughout the paper. There was, once again, clear evidence of very good time management by most candidates.

There are areas of the specification where candidates could show improvement, including:

- improved communication skills including basic 2D and 3D sketching.
- knowledge of correct technical terminology for tools and processes;
- knowledge of basic joining methods of similar and dissimilar materials;
- knowledge of basic properties and working characteristics of commonly used resistant materials especially those of metals;
- knowledge and understanding of methods and processes related to quantity production;
- knowledge and understanding of CAD and of CAM.

Comments on Individual Questions

Question 1

This question is about Industrial Practices, CAD/CAM and the effects of Design and Technology Society. There is a significant amount of confusion in candidate's minds about the advantages and disadvantages of both CAD and CAM. Additionally there is some confusion as to the differences between CAD and of CAM.

(a) Being able to change, save and share design ideas were the three most popular answers with, pleasingly, some candidates able to suggest the advantages of linking with CAM thus aiding the design and making activity. Many candidates incorrectly suggested speed of cutting out, making and mass production as advantages of CAD.

(b) One word answers were prevalent in this part of the question and failed to gain rewards. Stating "quick" or "accurate" in an unrelated manner cannot be rewarded.
The correctly identified improvements to the rate of production and the accuracy of components were the two most popular answers with the quality of cut (finish) clearly identified by many candidates.

(c) Reference to the set up costs and the expensive nature of the equipment were the two most popular answers. A good number of candidates also reflected on the issues surrounding the need to train personnel which was pleasing. Stating one word "expensive" failed to gain a mark. A minority of candidates referred to the running costs which was not asked for.

(d) The correct answer of "Conformité European" was rarely given. References to European Standards were rewarded but clearly the majority of candidates did not understand the significance of the symbol.

(e) Some excellent explanations of the use of the barcode and the uniqueness of the data stored and its uses were seen. However many candidates failed to explain fully to gain the second mark despite clearly knowing how they were used.

(f) An excellent range of poignant reasons why recycling is difficult were seen. Many candidates gained two marks for two different reasons given.

Question 2

This is the Themed question with pre-release materials being sent to centres prior to the examination. It is very pleasing to note that, once again there was very clear evidence that centres had undertaken quality product analysis activities in relation to this pre-release material.

(g) Very well answered with most candidates correctly identifying Welding or brazing.

(h) This part of the question was very poorly answered. Even where it was evident that centres had researched and well prepared candidates the correct identification of a scroll was limited to a small minority of candidates. Often candidates suggested the function rather than naming the part.

(i) The structural, supportive function of the cross brace was clearly understood by the majority of candidates.

(j) Aesthetic enhancement and protection of the end grain of the post were the correct answers and the majority of candidates gained a mark for this question with reference to the aesthetics being the most popular response.

(k) The understanding of the reasons for applying a finish to steel were understood by the majority of candidates with aesthetic improvements and protection from weather / prevention of rust being the two most popular answers.

(l) The majority of candidates scored well on this question but with a significant number failing to gain the mark for hanging the gate on the correct post, the right hand post as shown in Fig. 7.

Question 3

(a) The majority of candidates identified a suitable soft wood but surprisingly a minority quoting various hardwoods and a smaller minority stating plywood.

(b) Mortise and tenon and dowelled joints were the two most popular correct answers with the majority of candidates gaining a mark for this part of the question.

(c) The effect of weathering causing rusting was identified by the vast majority of candidates.

(d) (i) A high proportion of candidates understood the various advantages of using pre-manufactured components with the variety, ease of obtaining them and the fact you do not have to make them being the three most popular correct answers given.

A smaller number of candidates were vague with their responses demonstrating a general lack of understanding of the topic.

(ii) The disadvantage of pre-manufactured components were less well understood but with a significant number of candidates gaining a mark for a range of good reasons including the component not suiting the design being produced and not being able to match up components when more are required. A smaller number of candidates also correctly identified the fact that often there were too many or too few items in a pack.

(e) A good range of responses were seen for this design part of the question but with many candidates choosing the simplest solution of a turn button. Over half of these then failed to suggest a method to avoid the button revolving further than was required and thus not totally securing the doors in the closed position. A small number of quite inventive solutions were also offered.

Stopping the doors from swinging inwards was less well answered, again with candidates selecting to use a simple wooden lip often without suggesting where it might be located or how it could be fixed.

The majority of candidates avoided the use of pre-manufactured components with only a minority using bolts, catches and/or nails and so not gaining the one mark available for not using them.

Question 4

(a) (i) and (ii) The correct answer of design 2 was identified by 20% of the cohort. The fact that the components were identical and so only one jig or mould would be required gained the full three (1 +2) marks.

A significant number of candidates focused solely on the number of holes needing drilling or punching missing the point of the question.

(b) An interesting range of design solutions were suggested and a small but significant number of candidates gained the full three marks.

(c)

Many more concentrated on fixing the frame to part **A** <u>or</u> fixing base **A** to base **B** thereby failing to access the full range of marks available.

Some interesting and inventive ways of stopping scratching were suggested and ranged from a simple “washer” to routed groves in **A** and **B** with ball bearings kept in place by the chosen method of fixings.

Most candidates gained at least one mark for this part of the question.

(d) Only a very small number of quality solutions were seen with candidates gaining the full two marks for this part of the question. Many chose to just suggest the addition of a strip of aluminium with no sophistication of suggested method of fixing or attachment of the strip.

Question 5

(a) In general a disappointing response to the specification question. In point 3 the candidates were required to provide a specification point of their own but their suggestions were insufficient to allow credit to be awarded. The need for a justified specification to evaluate against it inherent within the course work and should have been well within all candidates experiences.

(b) (i) A challenging design part to the question with most candidates gaining 1 or 2 marks but only a small but appropriate number gaining the full 4 marks.

Little if any consideration was given by the majority of candidates of how their "method" would actually attach to the key and even fewer how it might be detached.

(ii) A number of candidates correctly identified specific materials and an appropriate associated manufacturing process for their design in part (i).

However a significant number of candidates suggested designing it with CAD and making it with CAM and so were not rewarded with the question demanding a more specific response.

General Certificate of Secondary Education
Design & Technology: Resistant Materials (Short Course) 1056
June 2007 Assessment Series

Component Threshold Marks

Component	Max Mark	A	B	C	D	E	F	G
Paper 1	50			30	25	21	17	13
Paper 2	50	29	24	20	15			
Coursework	105	81	69	57	46	35	25	15

Syllabus Options

Foundation Tier

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	175				90	76	62	49	36
Percentage in Grade					20.9	13.9	23.2	16.3	12.4
Cumulative Percentage in Grade					20.9	34.9	58.1	74.4	86.8

The total entry for the examination was 252

Higher Tier

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	175	136	119	102	85	67	58		
Percentage in Grade		8.5	12.8	23.4	26.6	19.1	7.5		
Cumulative Percentage in Grade		8.5	21.3	44.7	71.3	89.4	96.8		

The total entry for the examination was 141

Overall

	A*	A	B	C	D	E	F	G
Percentage in Grade	3.6	5.4	9.9	23.3	15.7	16.6	9.4	7.2
Cumulative Percentage in Grade	3.6	8.9	18.8	42.2	57.9	74.4	83.9	91.0

The total entry for the examination was 393

General Certificate of Secondary Education
Design & Technology: Resistant Materials (Full Course) 1956
June 2007 Assessment Series

Component Threshold Marks

Component	Max Mark	A	B	C	D	E	F	G
Paper 1	50			30	25	21	17	13
Paper 2	50	29	24	20	15			
Paper 3	50			30	25	21	17	13
Paper 4	50	33	28	24	19			
Coursework	105	81	69	57	46	35	25	15

Syllabus Options

Foundation Tier

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	175				95	79	64	49	34
Percentage in Grade					27.0	25.5	20.6	14.2	7.4
Cumulative Percentage in Grade					27.0	52.4	73.0	87.2	94.6

The total entry for the examination was 13077

Higher Tier

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	175	138	121	104	88	70	61		
Percentage in Grade		9.0	23.4	31.1	22.0	10.6	1.9		
Cumulative Percentage in Grade		9.0	32.4	63.5	85.5	96.2	98.1		

The total entry for the examination was 13231

Overall

	A*	A	B	C	D	E	F	G
Percentage in Grade	4.5	11.8	15.7	24.5	18.0	11.1	7.0	3.6
Cumulative Percentage in Grade	4.5	16.3	32.0	56.5	74.5	85.6	92.7	96.3

The total entry for the examination was 26308

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