



## **General Certificate of Education**

# **Design and Technology: Product Design 5551**

PD1D Materials and Components

## **Report on the Examination**

*2008 examination – June series*

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## General

Candidates seemed to be fairly well prepared for this paper particularly in responses given for the wooden chair and metal bottle opener in question 1, and in responses to question 2 which were more focussed and relevant than in previous papers.

There were fewer rubric infringements this summer and candidates completed the answer booklets in a logical, sequential order. Diagrams for processes were often very good with clear notes.

## Question 1

### (a) (i) & (ii)

This was generally well answered with appropriate materials given for the products and relevant properties explained. Answers for the wooden chair were particularly good making reference to the flexibility of plywood/veneers necessary for forming.

- (b) Responses for this question were mixed. Many candidates stated that the vase would be injection moulded. This seems to be an area that candidates revise well and therefore tend to anticipate a question on injection moulding. A small number of candidates gave a good description of laser cutting-going into the detail of power and speed settings.

Quite a number of candidates described sand casting for the manufacture of the bottle opener. Where this was described well, a small amount of credit was given. A relatively small number of candidates described pressure die casting or gravity die casting. Where they did, diagrams and description were usually excellent.

The majority of candidates accurately described forming processes for plywood, veneers or solid timber for the manufacture of the chair.

- (c) This was a very straightforward question and most candidates scored well.

## Question 2

This was generally well answered with the majority of candidates gaining around half marks or higher. Fewer candidates were giving generic properties with most giving at least one or two relevant properties for each material/product.

- (a) There was much reference to steel being a good conductor or insulator of heat. Clearly this was irrelevant. The better responses focussed on the toughness of the material, the non toxic properties, etc.
- (b) This was well answered with most candidates gaining maximum marks.
- (c) Generally this was well answered with the better responses describing relevant properties to function and manufacture.
- (d) Answers for this question were often basic and obvious. Marks were awarded where correct terminology was used and candidates described enhanced safety due to resistance to shattering.
- (e) This question was not well answered and few candidates gave convincing answers. It was clear that only a small number were aware of what thermochromic pigments were.
- (f) This was straightforward and generally well answered.
- (g) Similar questions have appeared in recent PD1D papers and therefore candidates were well prepared.

## Question 3

This was not a popular question with candidates. Only a relatively small number attempted it and, in most cases, responses were not very thorough. This follows a similar pattern to previous examinations where in general, candidates have found the topic of fabrication of metals difficult.

- (a) (i) Most candidates gave a suitable material such as mild steel, aluminium, etc.
  - (ii) This was fairly well answered with properties such as malleability linked to the forming of the various parts, etc. Unfortunately many candidates gave incorrect properties for the metal named in part (i). A popular mistake was that mild steel is corrosion resistant.
- (b) Responses to this question were poor. Many sketched electrical soldering irons and gave vague descriptions. Only a minority correctly described MIG welding or brazing using oxy-acetylene.
- (c) Finishing of metals continues to be a very weak area. Only a very small number of candidates gave a suitable specific finish and hardly any described the process of application in any detail.
- (d) Again, this question was poorly answered and often not attempted. A minority sketched and/or described suitable jigs.

#### **Question 4**

- (a) Responses to this question were mixed. Approximately half the responses gave a good account of the two benches in terms of the materials used and method of manufacture. There were very good answers concerning maintenance issues and sustainability.

However some answers were very descriptive- simply describing the colour and condition of the two benches. Many candidates used inappropriate terminology, describing timber as 'corroding'. Many thought that the LDPE bench would be painted.

- (b) Many candidates completely misunderstood this question, believing stabilisers were used to stop the bench blowing over. About one in three responses correctly made reference to resistance to UV/weathering.

#### **Quality of Communication:**

This was similar to previous Unit 1 papers, perhaps slightly better. Generally candidates used correct terminology and spelling, punctuation and grammar were good.

#### **Mark Ranges and Award of Grades**

Grade boundaries and cumulative percentage grades are available on the [Results Statistics](#) page of the AQA website.