DESIGN AND TECHNOLOGY

Paper 6043/01

Paper 1

General Comments

The general performance of candidates was much the same as last year, however, ***section A*** was a little below the normal good standard for this section. Many candidates were unable to score highly in this general section of the paper, and relied on ***section B*** to gain the higher marks. Tools and Materials proved to be a well understood part of the syllabus, with some outstanding graphics supporting the text. Processes continue to improve with a high level of knowledge of sand casting and injection moulding. One disappointing comment this year is the return of candidates committing rubric errors by answering all the questions on the paper. These candidates were unable to score highly, and would invariably cost the candidates time and effort. It would help future candidates if Centres pointed out that this practice does not produce any gains.

Details

Part A

Question 1

There was a mixed response, with many just giving the word 'hardness' and not referring to the temperature.

Question 2

There were some good sketches of the bradawl and its use, however, this simple woodwork tool was not known to many.

Question 3

The process tended to get a little mixed up with vacuum forming, blow moulding, etc. Injection was the correct answer, and the plastic had to be in a molten state to be shaped.

Question 4

Only a small number of candidates could name the boxes – cope and drag, which meant they had no knowledge of the sand casting process.

Question 5

There were very well drawn answers, showing the drawer bottom being fitted by a groove, rebate, nailed, screwed, etc.

Question 6

Most gave Tensol or Acrylic cement as the bonding agent, but failed to give the reason for the masking tape.

Question 7

Only a small number of candidates understood the meaning of 'forging' or its main hazard; the working of hot metal with a hammer.

Question 8

Most candidates were able to give a wood finish such as varnish, paint, oil, wax, French polish, etc.

Question 9

All seemed able to give valid answers to this safety question, with face mask for sanding, G.R.P, grinding, etc., and rubber gloves for glass fibre, resin, acid bath, etc.

Question 10

This was another question in which candidates tended to mix up the different plastics. The correct answers should have been: squeezy bottle – low density polythene for colours and flexible, and the hot drinks cup – expanded polystyrene for heat insulation and lightweight.

Part B

Section 1 – Tools and Material

Question 11

Three well known tools.

(a) Tools named and purpose understood –
A – Metric steel ruler used for general marking out and checking size.
B – Metric tape measure for large distance measuring, etc.
C – Micrometer used for measuring small items such wire, bar, etc.

(b) (i) Only a few candidates understood that the cut out leg on a pair of odd legs had to be at the end of a steel ruler for it to be set.

(ii) Most candidates just repeated the answer given **11(a)**.

(iii) All candidates were able to give detail of the micrometer checking the bar.

(c) A range of answers were given to checking the worn drill from vernier callipers, drill gauge and micrometer.

Question 12

In general, candidates showed a good understanding of materials, and the effect elements have on them.

(a) (i) Some good answers to the problem of hot weather on a softwood bench. The most popular being shrinkage and cracking, etc. A few candidates stated the bench would increase in size.

(ii) All candidates understood corrosion due to the effect of water and iron resulting in rust.

(iii) Again well answered, with the candle causing the acrylic holder to change its shape or melt.

(b) Some helpful examples explained –

(i) Many used the example of kiln seasoning to remove moisture; others used steam heating for bending timber without breaking.

(ii) Less well answered as **12(b)(i),** but still heating for changing metal structure, and able to anneal it for working into shapes.

(iii) A mixed range of answers on how air can be used with plastics. Answers ranged from fluidising plastic, cooling plastic and shaping plastic, such as blow moulding.

(c) Not well answered, with many candidates tending to give a general worldwide problem with the environment. The answers should have been related to the candidates' workshop environment.