CDT: DESIGN AND COMMUNICATION

Paper 7048/01
Paper 1

Key messages

It is important that candidates follow the instructions given. Most candidates correctly answered all of ***Section A*** and two questions from ***Section B***, but a small number of candidates attempted all three questions in ***Section B***.

Candidates should be encouraged to read questions carefully and to take note of command words and other important instructions and terms, such as *scale of 1:10, folded sheet, temporary method of attaching, assembled model*. In some cases, candidates may have scored higher marks if they had correctly followed the instructions for questions.

Candidates need to develop knowledge and understanding of all areas of the syllabus content. Some candidates answered parts of an optional question to an excellent standard but were then unable to complete other parts to the same standard. For example, the 3D bar chart and logo in **Question B3** were usually completed to a very good standard but the schematic drawing and design modifications were often less well completed.

General comments

All candidates appeared to have access to the standard drawing equipment and coloured pencils required for the examination.

Knowledge and understanding of developments (nets), orthographic projection, isometric drawing, two-point perspective, bar charts and rendering were strengths for many candidates. Knowledge and understanding of making processes and materials were areas of weakness for some candidates.

Very few candidates worked outside the response area given for each question. There was no evidence to suggest that candidates did not have sufficient time to complete the question paper.

Comments on specific questions

Section A

Question A1

(a) (i) This question required candidates to add the missing base and back to the given development (net). Many excellent responses were seen to this question. Almost all candidates were able to add the base and back, but these were not always of the correct size. The fold line between the two surfaces was usually correctly shown by a dashed line. A small number of candidates drew surfaces that were not connected to each other or the given surface.

(ii) This question required candidates to add the two cut outs to the given surface of the development (net). Almost all candidates were able to complete the given cut out and add a second cut out. Many excellent responses were seen to this question, but in some cases the cut outs were the incorrect size or in the incorrect position.

(iii) This question required candidates to add the glue tab to the given surface of the development (net). Most candidates were able to add an appropriate size glue tab in the correct position.

Common errors were not angling the ends on the glue tab or it being so narrow that it would not hold the development (net) together.

(b) (i) This question required candidates to add the second cut out to the plan view. The responses to this were usually correct with most candidates scoring maximum marks. Common errors included adding a second cut out of the incorrect size or in the incorrect position.

(ii) This question required candidates to add the two cut outs to the front view. The first part of the anticipated construction method was to project lines vertically down from the cut outs on the plan. The second part was to project lines across from the cut outs on the plan to a 45-degree line, then down to the inclined surface on the end view and finally across to the front view. Alternative constructions were accepted. Many excellent responses were seen, but in some responses the lack of a construction method meant that the cut outs added to the front view were the incorrect size.

(c) This question required candidates to accurately construct a full-size isometric view of the given plastic bottle. Many excellent responses were seen, with the base of the bottle drawn correctly and the construction for the cap clearly visible. In weaker responses the cap was often the incorrect size or based upon a circle drawn with a compass. A small number of candidates drew the bottle in oblique or in perspective.

(d) (i) This question required candidates to render the spherical cap to look like it was made from shiny plastic. Many excellent responses were seen, but weaker candidates often failed to effectively show the spherical nature of the cap or that it was made from shiny plastic.

(ii) This question required candidates to add finger grips to the cylindrical bottle cap. The most common response was to add vertical lines to the side of the cap. There were many excellent responses but the lines drawn did not always effectively communicate that they represented a textured surface rather than applied graphics.

Section B

Question B2

(a) (i) This question required candidates to add the word SUNNY to the given table. Most candidates successfully added the word in a similar size and style to the given lettering. A small number of candidates did not add the word or added it in a style that was different from the words given in the table.

(ii) This question required candidates to add designs for the CLOUDY and LIGHTNING symbols to the given table. Many excellent responses were seen, with candidates scoring full marks. Common errors included adding symbols that were not in the same style as those given or the symbol not being positioned centrally in the box provided.

(iii) This question required candidates to give two benefits of using symbols rather than words. The most common responses were to do with people who could not read or understand English, being able to understand a symbol more easily and that a symbol would be visually more appealing. A common incorrect response was to state that symbols would be smaller in size.

(b) (i) This question required candidates to use sketches and notes to show a temporary method of attaching card weather symbols to a foamboard map. The most common responses were Velcro, pins and magnets. The sketches and notes were usually of sufficient quality to effectively communicate the method. Some candidates did not fully understand the word ‘temporary’ in the question and showed permanent joining methods, such as an adhesive.

(ii) This question required candidates to use sketches and notes to show a method of making card symbols weather resistant. The most common responses were laminating, varnish and the use of a clear self-adhesive vinyl film. The sketches and notes were usually of sufficient quality to effectively communicate the method.

(c) This question required candidates to complete the given planometric drawing of the folded acrylic sheet. Corner **A** was given as a starting point. Many excellent responses were seen to this question, with candidates able to add the finer details of the drawing such as the opening, fold out

flap and thickness of the material. Common errors included not showing the sheet as folded, not using corner **A** as the starting point or not drawing the fold down flap.

Question B3

(a) (i) This question required candidates to label the fixed pivot on the given schematic drawing. Many correct answers were seen, but some candidates labelled an incorrect point or failed to label any point on the schematic drawing.

(ii) This question required candidates to show the position of the swing at 30 degrees to the left and 30 degrees to the right. Very few totally correct responses were seen, with the seats often in the incorrect position or the incorrect size. Regardless of the size or position of the seat, the chains were usually added to the given pivot point.

(b) This question required candidates to draw a 3D bar chart from the given information. Many excellent responses were seen, with the given information correctly plotted on the 3D bar chart and colour and labels used to enhance the drawing. A small number of candidates drew a 2D bar chart or a pie chart.

(c) (i) This question required candidates to add a circle to the partly completed logo. This was usually completed correctly but occasionally the circle was of an incorrect size or in the wrong position.

(ii) This question required candidates to add an equilateral triangle to the partly completed logo. This was usually completed correctly but in some responses it was the incorrect size, often because the circle drawn for **(i)** was the incorrect size, or in the incorrect position.

(iii) This question required candidates to add the letter 'S' to the partly completed logo. This was usually completed and many excellent responses were seen. However, some candidates added an 'S' in a style that was different to the given 'G'.

(iv) This question required candidates to show two modifications to the logo that would represent a swinging motion. Only stronger candidates completed this well, with other candidates either not responding or simply drawing a child on a swing. More successful responses showed part of the logo with arrows to represent a swinging motion, or the triangle of the logo turned into a swing.

Question B4

(a) (i) This question required candidates to state two reasons why Styrofoam is a suitable material for the model of a building. The most common answers were that it is easy to cut, lightweight and relatively inexpensive. A common incorrect answer was to state that it is durable.

(ii) This question required candidates to name two tools that could be used to cut Styrofoam. The most common responses were a craft knife, hot wire cutter or hacksaw. A common incorrect answer was a cutter.

(iii) This question required candidates to name an adhesive that could be used to join Styrofoam blocks together. The most common answers were double sided tape and PVA glue. The word glue on its own was not awarded a mark, as it did not refer to a specific type of adhesive.

(b) This question required candidates to complete a full-size two-point perspective drawing of the assembled model building. Many excellent responses were seen, with candidates scoring high marks, but in weaker responses the angles of the roof proved to be particularly challenging. Common errors included producing an isometric drawing or drawing an exploded view of the model. Some candidates would have scored higher marks if they had taken note of the term *assembled model* in the question.

(c) (i) This question required candidates to use sketches and notes to show a method of adding a door and a window to the Styrofoam model. Common correct methods included cutting shapes out of Styrofoam and glueing to the model, self-adhesive labels and the use of a stencil and felt tipped pen to draw onto the Styrofoam. The sketches and notes were usually of sufficient quality to communicate the method.

(ii) This question required candidates to add rendering to the given drawing of the door to make it look like wood and to the given drawing of the window to make it look like glass. Many excellent responses were seen to this question, with candidates scoring full marks.

(d) This question required candidates to state two reasons why a designer might make a model of a building. Common responses included to see if there were any faults, to show to a client or to see what it looked like. Common incorrect responses included unclear reasons, often partly due to the quality of written communication, or the same point being repeated using different words.

CDT: DESIGN AND COMMUNICATION

Paper 7048/02
Paper 2 Design Project

Key messages

Candidates selected one of the given design situations and produced a portfolio that contained evidence of their designing and making activity.

Many examples of outstanding work were seen, which demonstrated excellent graphical techniques, perceptive design skills and accurate use of technical vocabulary.

Some candidates needed to further develop their design folders because they were often incomplete and demonstrated limited understanding of elements of the design process.

General comments

The design folders were generally presented in a logical sequence, with good evidence of candidates having given the assessment criteria careful consideration. Successful candidates used the assessment scheme headings to identify the different sections of their work.

Many design folders showed good use of information technology, for word processing and research, but there was less evidence of such technology being used for designing and making (CAD/CAM).

Almost all candidates produced a justified design specification. Stronger responses linked the justifications to the research.

Candidates who achieved higher marks used photographic evidence and annotations to good effect to show all the stages in the making process and the final product. Weaker responses often included incomplete records of making, with annotations that demonstrated limited knowledge of the making processes.

Comments on specific assessment headings

Problem Identification

This section of the assessment criteria required candidates to interpret and clarify the design situation they had chosen and to write a design brief.

All candidates appeared to be able to select a design situation, from those given in the question paper, that that was of interest to them.

Stronger responses demonstrated a good understanding of the design need and user requirements and showed a clear design brief derived from the design situation. Many candidates scored high marks by producing just one or two pages of A3 work for this section of the project. Weaker responses included a simple design brief or showed a lack of understanding of the design task.

Research and analysis

This section of the assessment criteria required candidates to collect and interpret information that was relevant to finding a solution to the design task.

Stronger responses identified the key areas of investigation that needed to be undertaken, collecting and analysing data which would influence the design activity.

Consideration of existing products was a strength in many projects, with an image of a product in the centre of a page and then comments around, being a common approach. The comments often revealed a candidate's real understanding of the product in terms of the function, materials used and construction methods.

Weaker responses showed a collection of general information on materials, construction techniques and other aspects which had little or no relevance at this stage of the design process. This type of information was often taken directly from the internet or textbooks.

All candidates would benefit from developing a clear plan of action at the start of this section of their project and then identifying, through analysis of the data collected, factors that would have in impact on the development of their design proposals.

Specification

This section of the assessment criteria required candidates to use their research to produce a justified specification that completely defined the product.

Whilst many justified specifications were seen, in some cases the justification only consisted of generic statements that might apply to almost any product. Candidates should be encouraged to justify their specification points by making references to the research that they have undertaken.

Proposals for a solution

This section of the assessment criteria required candidates to synthesise and communicate proposals for a solution to their chosen design task.

For many candidates this area was a real strength, with freehand sketching being used to good effect to communicate a range of appropriate ideas. The ideas were generally imaginative and included ongoing evaluation as well as a summative evaluation to select an idea for development.

Stronger responses demonstrated outstanding graphical skills in communicating innovative ideas, with three dimensional sketches, accurate isometric drawings and exploded views being particularly impressive.

Weaker responses often presented several ideas that were similar in form and function.

Development and planning

This section of the assessment criteria required candidates to make reasoned decisions about how the final design would be made and what materials would be used in the construction. Design folders should contain a complete and accurate set of working drawings and a detailed plan for making the product.

This section was often the weakest part of a design folder, sometimes because it was little more than a redrawing of the chosen idea. To gain high marks, candidates must devise and use a testing and trialling strategy to make reasoned decisions about their chosen design solution.

Candidates should be encouraged to give full details of the materials, construction methods and key dimensions required to make the product they have designed. Orthographic views were commonly used for working drawings but other methods, such as exploded drawings or sectional views, were seen.

All candidates should be encouraged to produce an accurate list of the materials required to make the product that they have designed.

Where flowcharts or Gantt charts are used for planning, the stages should be specific to the task and not generic, such as cutting out, assembling or finishing.

Realisation

This section of the assessment criteria required candidates to make the product they had designed.

Stronger responses showed that the making was complete and of an excellent standard, resulting in products that functioned as intended. Weaker responses showed that the making was incomplete and of a low standard, resulting in products that did not function as intended.

Most projects appeared to cover an appropriate range of materials and making skills. Projects were usually made from cardboard, foamboard, Styrofoam, thin plastic sheet or softwood. Making processes included marking out, shaping, joining and finishing materials. In all cases, the tools used to complete the making appeared appropriate for the task.

All candidates needed to include in their design folder several high-quality photographs of the completed product. Some photographs were low-resolution, and this made it difficult to determine the quality of the product.

Record of making process

This section of the assessment criteria required candidates to use photographs and notes to record the making process.

Whilst many excellent responses were seen, it is important that high-resolution photographs, showing the candidate making their product, are taken throughout the making process. In general, only limited use was made of technical terms in the annotations that were included with the photographs of the making.

Evaluation

This section of the assessment criteria required candidates to test the product they had made and make suggestions for improvement.

Many candidates used simple ticked boxes against specification points as the key feature of their evaluation. Some candidates expanded on the ticked boxes by giving sound objective comments to explain the good, or not so good, features of their product.

Stronger responses showed how the product had been fully tested against the specification by gathering comments from potential users or a client. As a result of this testing detailed proposals for justified improvements were made. Weaker responses gave a few subjective comments about the product.

It is not necessary to include a personal evaluation in this section of the project.