

CDT: DESIGN AND COMMUNICATION

Paper 7048/01
Structured

Key Messages

Many excellent answers were seen; the following were considered to be areas where improvement could be made:

- the correct positioning of views in 1st and 3rd angle orthographic projection;
- the use of fold lines in a development required to make a closed box
- the ability to draw an isometric view to scale from given orthographic views;
- the alignment of exploded isometric views;
- the knowledge of common CKD components;
- the drawing of loci of a moving part;
- the graphical representation of data;
- the construction of an ellipse to a given size;
- the drawing of circles in planometric projection;
- the drawing of a solid in two point perspective;
- the use of pictograms to convey an instruction.

General Comments

Candidates were required to complete **one** question from **Section A (Question 1 or Question 2)** and **two** questions from **Section B (Question 3 - Question 6)**. This rubric instruction was followed by the majority of candidates but a small number answered more than three questions.

The standard of work was comparable to that of the previous year. It was clear from the responses that there were many able candidates who were well prepared for the examination.

Centres are reminded not to secure the papers together with string, staple, paper clip or a treasury tag. It is important that the candidate completes his/her own details on both answer sheets.

Comments on specific questions

Question 1

This question had been formatted to give the candidate the working order of drawing the three views required.

- (a) (i) Candidates were required to produce a plan of the hexagonal prism in the direction of arrow **P**. All candidates managed to draw a hexagon but not always to size or in the correct orientation. The 35 x 6 mm slot was required to be added to the plan view to the correct size and the correct orientation.
- (ii) The question required the candidate to draw a front elevation in the direction of **FE**. Many candidates drew this view but not always aligned with the plan they had drawn.
- (iii) Where candidates had misaligned the **FE**, the view in the direction of **EE** presented problems for the candidate to project the view. The drawing of this third view showed the candidates understanding of either 1st or 3rd angle projection by the positioning of the display panel.
- (b) Most candidates managed to draw six sides to match the width of the given side. A number of candidates added the display panel to the correct side. Successful candidates also included a long

glue tab to one side to join up the hexagon. The convention for a fold line was given in the question start, but not all candidates used it correctly in their solution.

- (c) (i) Many candidates drew their design for a logo of the house with the word HAVEN included. Very few candidates managed to show a development of their initial idea.
- (ii) Candidates were successful in adding their idea to the given box. Some filled the box appropriately and colour was added in most cases to enhance the appearance of the drawing.

Question 2

- (a) Many candidates drew an isometric view of the display stand and the information panel in the direction required. Some candidates did not include the top and/or bottom rail or the advertising board. A number of candidates did not manage to draw the tubular parts to the correct scale.
- (b) The question required candidates to interpret the two given orthographic views of the top corner joint and draw an exploded isometric view of the four component parts. Many candidates drew two tubes exploded but not all tubes drawn were square. A large number of candidates included a bolt, but many had a hexagon head and not a cheese head. Very few candidates drew a barrel nut or included a threaded portion to their bolt. Cheese head bolts and barrel nuts are in common use in CKD articles.
- (c) (i) Many candidates sketched a clip that would hold the foam board to the frame. Not all the fasteners drawn allowed the display board to be removed. Successful candidates showed progression in their idea sketches.
- (ii) The best responses seen were three-dimensional drawings with the function illustrated or supported by notes. Good examples of rendering showed most to be made of metal.

Question 3

- (a) (i) Successful candidates realised that the view required was two circles drawn 16 mm apart with the largest (base) circle drawn on the given centre lines.
- (ii) Most candidates drew an end view and a front view. Not all the solutions seen had the two views in alignment or projection.
- (iii) Most candidates drew the 'eye line' and the two VPs correctly. Whilst many solutions showed a hipped roof, the centre was not always determined by construction.
- (b) This part of the question required candidates to develop an idea for two symbols. Many candidates drew an appropriate symbol for 'waterproof'. Fewer candidates drew an appropriate symbol for 'easy assembly'
- (c) This part required candidates to add tone to the drawing of the accommodation and then to add their ideas for a symbol for 'waterproof' and 'easy assembly' to the appropriate circle space. Some very high-quality solutions were seen from successful candidates.

Question 4

- (a) (i) This part required candidates to add the word AQUA to the correct side of the given box. Most candidates managed to letter in upper case, with the most successful aligning their lettering with the projection given.
- (ii) Candidates were required to add the wave design to the appropriate face. Successful candidates showed four waves in the correct orientation filling the correct side of the given drawing.
- (b) Whilst many candidates drew vertical lines to show six equal spaces, very few results exhibited a geometrical construction to divide the width into six. Most candidates extended the given horizontal lines to show five vertical spaces. Successful candidates projected their six divisions down to show the correct front view.

- (c) (i) Many candidates sketched the tray. Stronger responses showed the tray 'open' and with two handles. The best results showed the reinforcing folded down and the glue flaps on the end panel.
- (ii) Candidates were required to complete the assembly instructions by adding sketches to the boxes. Many candidates drew a tube of glue with the adhesive being applied to the tab. Many candidates also showed the joint being 'held' but very few showed a clock or similar to depict the '5 mins' time duration. The most successful candidates drew a single pack from part (a) being put into the tray from part (c).

Question 5

- (a) Candidates who attempted drawing the flight path were generally successful. The main difficulty was in drawing the North East direction and distance.
- (b) Of the candidates who attempted this part of the question, many drew the square to the correct scale. The drawing of the diamond and the inner circle depended very much on the accuracy of the candidate solution to the initial square. Nearly all candidates added the letters R, O & P. Successful candidates produced lettering that was to the correct height, style and spacing
- (c) Very few candidates completed this loci question correctly. The question required candidates to plot the roll of a barrel through 180° (half roll). To produce the loci, the solution had to show that the circle had been divided into 12 and the chord of the rolling circle stepped off six times on the horizontal before being projected to give the centre of the six circle positions. T1 and T2 can then be plotted by drawing the $\varnothing 400$ arcs on each of the 6 centre positions. A smooth curve can then be drawn to show the loci of the two points T1 and T2 as they make a half roll.

Question 6

- (a) Most candidates managed to draw a pie chart. The data given added up to 360. Candidates who realised this, drew accurate sectors of 120° , 60° , 45° and 135° . Most candidates used colour and a label/key to identify the chart sectors.
- (b) This part of the question required a line graph to be drawn to show a rise in cost. This requirement was missed by some candidates and the graph was drawn in the wrong orientation. Some candidates did not use an appropriate scale and/or label the axis correctly.
- (c) This question required a three-dimensional bar chart to show the fall in response time over a period of 2007 to 2010. Not all candidates drew a three-dimensional graph. Many of the successful candidates used an appropriate scale and labelled the bars correctly to give the fall in response time.
- (d) Most candidate responses showed two ellipses. Some drew ellipses that were not to the sizes required. It is important that drawings of ellipses show the construction used. Where candidates use a trammel, this should be attached to or drawn on the examination script. Nearly all candidates added four boxes to a suitable estimated size with the correct labels inside them. Arrows were added by many with some not always going in the correct direction.

CDT: DESIGN AND COMMUNICATION

Paper 7048/02
Coursework

Key Messages

- Good time management is important for candidates to give an appropriate amount of attention to each section.
- The gathering of information at the Research and Analysis stage should remain focussed and relevant to the design problem being considered.

General Comments

The majority of the candidates had used the assessment criteria headings to identify the different sections of their work and should be congratulated on the clear presentation of their folders. Many candidates had made use of ICT and some outstanding computer-generated graphics work was seen. It is, however, important to maintain an appropriate balance between computer and hand-generated work. As has been reported in previous years, some candidates tend to spend too much time on the Research and Analysis section sometimes at the expense of other areas of their coursework folders. The mark allocation given in the assessment criteria provides a good guide as to the amount of time that should be spent on each section of the coursework.

Comments on Individual Assessment Criteria

Problem Identification

Many candidates scored well in this section. Candidates had clearly been able to select a design problem, from those given in the question paper, that that was of interest to them. It is at this stage that the intention of the project should be identified and set out clearly. The majority of candidates had successfully done this by sensibly basing their work in a local context and on a situation that they were familiar with.

Research and Analysis

This section provides candidates with the opportunity to consider all aspects of the design problem they have chosen to base their project on. Before collecting and analysing information candidates should be encouraged to ask themselves the following questions, 'What do I need to know? Why do I need to know this? Where will I find the information I need? How will I use what I have found out? Candidates need to understand that the research they undertake needs to be focused on, and relevant to, their chosen design problem.

Most candidates looked in an appropriate way at existing situations or solutions so that they could draw on this experience when producing their own solutions to the design problem. However, as has been reported in previous years, many candidates gathered 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. Candidates need to understand that this approach simply wastes time and does not gain credit.

Specification for a Solution

The more successful specifications were those where candidates had drawn on the results of their research and analysis to produce a list of specific requirements that their design solution must meet. Candidates need to understand that a detailed and meaningful design specification can form a useful aid for both producing their design ideas and for the evaluation of the final solution.

Proposals for a Solution

This is the opportunity for candidates to be really creative and to record and consider a range of different ideas for a solution to their chosen design problem. Successful candidates did not restrict themselves to one or two basic ideas but produced a range of distinctly different design proposals which were well communicated using a variety of graphic techniques.

It is important that candidates annotate their design drawings and record their thoughts on each idea for possible future development. It is these notes that indicate to the reader how and why the candidate's ideas have been produced and developed.

Many candidates displayed high-quality drawing skills in this section of their design folders.

Realisation

It is important that candidates include a number of high-quality drawings and photographs of their final outcome in their folder as this is the only evidence of the final product that is seen by the Moderator. Currently, not all candidates are doing this. The work appeared to cover the intended range of appropriate materials and making skills and techniques. Many of the final outcomes were produced to a very high standard.

Evaluation

The better evaluations were those where there was evidence to show that a candidate had carried out meaningful testing and considered the results against the original design specification.

Although some candidates continue to use ticked boxes against specification points, many others gave sound objective comments to indicate the success, or failure, of their solution. Candidates need to understand that as a result of objective testing, meaningful recommendations for improvement and modification should be made.