

# CDT: DESIGN AND COMMUNICATION

Paper 7048/01

Structured

## 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 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.

Whilst many excellent answers were seen, the following were considered to be areas where improvement could be made:

- drawing an isometric view accurately from given orthographic views;
- correct positioning of views in 1<sup>st</sup> and 3<sup>rd</sup> angle orthographic projection;
- drawing of arcs when viewed in a isometric plane;
- application of shading to show a curved surface;
- alignment of exploded isometric views;
- drawing of circles in planometric projection;
- understanding of a pictorial sketch and a sectional sketch;
- ability to communicate a flow chart clearly using the symbols correctly;
- ability to add a decision box and feedback loop correctly to a flow chart.

## Comments on specific questions

### Question 1

- (a) (i) Candidates were required to produce an isometric view of the model stadium. A large majority of candidates managed to draw the base to the correct scale, but not always in the correct orientation. Successful candidates used the upper surface of the base to mark out the positions of the 6 posts. Many candidates drew the posts to the correct height. A few candidates misread the given plan view and omitted the gap between the two front posts. Many candidates used a visible inner face of one the posts to draw in the correct height of the panel in a central position. This height and location could then be projected around the remaining posts. Very few candidates managed to draw the running track in the correct plane.
- (ii) An application of thick and thin line technique was required to enhance the candidates' solution. This can be achieved by making the line thick on each edge when only one producing side is visible. All other lines are left at the normal thickness.
- (b) Most candidates managed to draw an ellipse to the given major and minor axis. Some candidates did not show a recognisable construction method. A few candidates showed a correct construction but did not connect the correct 'plots' by a curved line. Most candidates printed the word WELCOME in the correct position. Candidates who 'crated' the letters, achieved the best result.
- (c) Whilst many candidates used one or more of the given shapes in a logo, a number of candidates misread the question and did not include all the shapes and the letter P.
- (d) (i) Many candidates drew their design for a logo on the flag. Very few candidates managed to draw the circle or the curve of the P as an elliptical shape.

- (ii) Very few candidates applied shading to show the pole as round and

## Question 2

- (a) (i) Many candidates drew an end view in the direction required. Some drew the roof and its supports or the advertising board.
- (ii) Most candidates drew a view in the direction of FE but did not draw in (i).
- (iii) Many candidates drew a plan but without projecting it from (i) or (ii) at the correct height and depth but not correctly positioned to the other views. It was completely independent in a space available.
- (b) The completion of the advertising board was successfully attempted by all candidates. Some candidates did not continue the given fold line to the correct symbol.
- (c) Many candidates drew a design for the advertising board using at least one fruit shape and the word 'ZING'
- (d) (i) Most candidates completed the drawing of the advertising board by connecting the 'start' lines up to VP1 and VP2. Some candidates however, did not draw the triangle correctly or add the protruding footboard. Candidates who added the footboard correctly also joined the Right hand end up to VP1.
- (ii) Nearly all candidates added their design to the front board. Many successfully applied their design in 'perspective'.
- (iii) Most candidates responded well to the requirement of the question to apply colour to 'enhance the appearance' and not just to apply colour to the whole advertising board.

## Question 3

- (a) Many candidates managed to draw the rectangle to the correct size and to divide the rectangle into three equal parts vertically. However, only a few candidates used a graphical method of dividing a line to do this. Most candidates drew the three squares correctly to size and located them centrally to each folded part. Candidates who divided each part graphically were able to locate the centres of the three circles accurately. The centre of the middle circle is also used for the drawing of the semi-circle. A large number of candidates drew the stripe but not always at 45° or 30 mm wide for full marks.
- (b) This part of **Question 3** requires candidates to work a process in reverse. Of those who attempted the question most drew a flat sheet with the cut lines and fold lines correctly marked out. Some candidates successfully completed the second box to show a fold at 90°.
- (c) This part of **Question 3** required candidates to sketch an exploded isometric given a section view of the parts of the base. Most candidates managed to sketch the square component. Candidates who went on to superimpose the triangle top on the top surface of the square were able to project this shape upwards to give a true exploded position. Two pegs were required to be viewed in between the square and the triangle. Candidates who scored full marks used the top surface of the square as a starting point to draw two holes and then projected two round pegs upwards to sit in the space between the exploded views.

## Question 4

Very few candidates attempted this optional question

- (a) This part of the question required a simple locus to be drawn of position **P** as the sunshade is closed. The solution required should show the arm in several positions from its given open location to that close to the pole. By drawing the connecting brace in the several positions, point **P** can be plotted as an arc.

- (b)(i) A pictorial sketch was required by this question to show the position by a pin.
- (ii) A sectional drawing of the pole, collar and pin was required as a marking scheme awarded marks for the pole and the collar to be shown in position (with arrows indicating directions) and the pin to be shown in position.
- (c) Many candidates coloured the pole but did not apply the colour to the 'roundness' The end cap should have been shown as a polished rod.
- (d) Full marks were awarded to candidates who drew two circles 25 mm apart on sloping sides with a sloping straight line. Some candidates did not show 'true projection' the circular parts of this base are drawn as true circles.

### Question 5

- (a) Many candidates attempted the flow chart. However, some candidates did not use the correct symbols for the correct activity. A large number of candidates recognised the 'check race list' as the 'decision' and used the diamond box appropriately. A small number of candidates drew in a feedback loop appropriately with YES and NO options. It is important that the feedback loop goes to the previous activity to score full marks. Whilst linking lines were evident in nearly all solutions, arrows had been omitted by some candidates.
- (b)(i) Many candidates drew a plastic cup in position **A**.
- (ii) This question part required a simple hole to be drawn that showed some thickness of the tray in position **B**.
- (iii) A correct solution needed to show the circular top lower in projection than the plastic cup top with a smaller curve on the tray top. Sloping sides to the cone were required for full marks.
- (c)(i) Many candidates drew a logo but some did not score full marks because words had been used as instructions on the logo.
- (ii) Most candidates applied their logo correctly to the space provided.

### Question 6

A large majority of candidates attempted this question.

- (a) Most candidates managed to add a similar border to the two remaining picture frames. A large number of candidates added the remaining team names to each picture frame in a style similar to that used for 'Lions'. Whilst images for 'Sharks' and 'Eagles' were available in the question stimulus, not all candidates managed to add a clear image to each picture frame.
- (b) The question required a pie chart to show the number of 'first places' for each team. Not all candidates managed to extract the correct data from the given table. Whilst it was possible to construct the 120° sector for 'Lions', using a compass or the 30/60 set square, the 80° sector for sharks needed to be drawn using a protractor. Some candidates omitted to include the question requirement that each sector must have a relevant image and be enhanced using colour.
- (c) This question required a three-dimensional bar chart to show the results of the 'Lions team. Some candidates produced a two-dimensional bar chart whilst others produced a line graph, so could only gain partial credit. Successful candidates used a vertical scale for the number of places won and a horizontal axis for first, second and third. The bars needed to be labelled 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> to gain 3 marks. It was also important that the whole 3-D bar chart was labelled 'Lions team' or similar to gain the final mark

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Coursework

The majority of candidates should be congratulated on the clear layout and presentation of their design folders. Many had used the assessment criteria headings to identify the content of their folders. Some candidates spend too much time on the Research and Analysis section frequently at the expense of other areas of their coursework folders. The mark allocation given in the assessment criteria should be used as a guide as to the amount of time that should be allocated to each section of the coursework.

## Comments on Specific Assessment Headings

### **Problem Identification**

Candidates had clearly been able to select a design problem, from those given in the question paper, that was of interest to them. Many had based their work in a local context and on a situation that they were familiar with. This is the stage at which the intention of the project is identified and set out clearly. Many candidates scored high marks in this section.

### **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. Candidates should be encouraged to ask themselves the question: 'What do I need to know?' and then go on to find and analyse this information. 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 a sensible way at existing situations or solutions so that they could draw on this experience when producing their own solutions to the design problem.

Some candidates gathered general information on materials, construction techniques and other aspects which had no relevance to this stage of a design process. This type of information was often taken directly from textbooks. Candidates need to understand that this approach does not gain credit.

### **Specification for a Solution**

Successful candidates drew on the results of their research and analysis to produce a list of specific requirements for their design solution. Candidates need to understand that a meaningful and detailed 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 whole range of different approaches to the solution of their chosen design problem. Successful candidates produced a range of different proposals which were well communicated.

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

Many candidates should be congratulated on the high quality of their drawing skills in this section of their design folders.

### **Realisation**

It is important that clear photographic evidence of the final outcomes is presented to judge the products that have been made. Work generally appeared to use appropriate materials and many of the final outcomes were finished to a very

### **Evaluation**

The better evaluations were those where there was evidence to show that candidates had carried out meaningful testing of their final solution and considered the results against the

Some candidates continue to use ticked boxes against specification points; however, 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 can be made.