



## External Assessment Report 2014

Subject(s)	Product Design
Level(s)	Higher

The statistics used in this report are prior to the outcome of any Post Results Services requests

This report provides information on the performance of candidates which it is hoped will be useful to teachers/lecturers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding. It would be helpful to read this report in conjunction with the published question papers and marking instructions for the examination.

# Comments on candidate performance

## General comments

### Question paper

As can be seen from the table below there was a poorer response to this year's paper. In particular the questions which caused candidates the most problems were 4(b)ii, 4(b)iii and 5(c).

On reflection it was felt that the use of the word 'issues' in Question 5 could suggest a negative response from candidates and steer them in a wrong direction. It was felt that the choice of the Airbus 380 as a topic could have added unintended difficulty to the question.

As a result of these decisions, grade boundaries were adjusted slightly to accommodate candidates who may have been disadvantaged.

There was minimal change in the layout of the paper, with a mix of short response and extended response questions.

### Design Assignment

Markers indicated that there were fewer outstanding Design Assignment folios accruing full or near full marks.

Candidates generally scored higher marks in the Design Assignment than in the question paper. This is in line with previous years, although the gap has narrowed recently.

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014
Question Paper (average mark)	35	35.3	35.3	33.2	36.3	36.4	32.5	39.3	36.2
Design Assignment (average mark)	42.6	41.2	42.3	42.5	42.6	42.9	40.5	38.3	38.6

### Question paper

#### Question 1 (30 marks)

Generally responses in question1 were very good, the average mark for this section being 20.

- a) As indicated almost every year, some candidate's specification points are too simplistic and reminiscent of Standard Grade. Specification points are generic for this question and lifting data from the question paper will not accrue marks. The information given is to enable candidates to identify issues which would appear in a

Design Specification. Technical Specification points will not gain marks if they are simply lifted from the data given.

- b) Answered quite well.
- c) Answered well.
- d) Answered well
- e) Answered quite well.
- f) With an average of 1.75 out of a possible 4 marks, the responses to this question were slightly disappointing.

**Question 2 (5 marks)**

- a) Answered well (2 marks).
- b) Answered quite poorly. Generally answers did not highlight the improvement in the properties that these materials give. Comparisons with traditional materials that are replaced by composites could help here. Also that specific material properties can be achieved (3 marks).

**Question 3 (6 marks)**

- a) Answered reasonably well (1 mark).
- b) Answered well (2 marks).
- c) Answered well (3 marks).

**Question 4 (9 marks)**

- a) Reasonably well answered (2 marks).
- b) (i) Disappointing responses for this very standard question — some candidates not explaining the purpose of a prototype (1 mark).  
(ii) Answered poorly. It was felt however on reflection that candidates may have been disadvantaged by the context of this question and an adjustment was made to the grade boundaries (3 marks).  
(iii) Answered poorly. As (ii) (3 marks).

**Question 5 (6 marks)**

- a) Answered well (2 marks).
- b) Answered well (2 marks).
- c) Answered poorly. The wording of this question ‘Describe two issues for the manufacturer of using batch construction for these components.’ may have steered candidates to a negative response. This was not the intention and as already indicated an adjustment has been made to the grade boundaries (2 marks).

**Question 6 (9 marks)**

- a) Demanding question which produced a full range of marks with some very good answers (4 marks).
- b) Answered well (2 marks).
- c) This was answered reasonably well (3 marks).

**Question 7 (5 marks)**

A topic which has been examined in the past and produced at best mixed responses from candidates. Answers to this question however were very satisfactory this year.

## **Design Assignment**

Centres were given a choice of design options based on a theme. The range of tasks was devised to give as much choice as possible to candidates whilst allowing centres to retain a level of control over the assessment process.

As usual candidates were given four scenarios, giving an opportunity for candidates to show creativity and expression. This is done to enable candidates with a wide variety of talents and backgrounds to perform to their capabilities. It is essential that centres encourage candidates to choose the topic that suits them best. It is sometimes surprising to see the lack of variety of tasks chosen by candidates from centres with high entries.

The Design Assignment followed the usual format, with candidates being limited to eight pages of material. There was little evidence of candidates producing complex front covers and contents pages, which are superfluous in the design folio. Once again the addition of page numbers by centres greatly assisted assessment.

The eight-page format was generally followed. There were a few instances of folios exceeding eight pages. When this occurs, the first eight pages of work, excluding front covers, are assessed.

### **Section 1: Initial Ideas (15 marks)**

This section is generally done well by candidates, although the decisions reached still tend not to be highlighted and referred back to the specification.

In some cases **candidates still use four or five pages** for this section. This does not leave adequate opportunity to gain marks in the rest of the folio. Some time spent beforehand, in class, looking at the balance of their work, and relating this to the Design Assignment Specification, could help to minimise this problem.

The use of, in some cases, one complete page for an evaluation matrix is a waste of resources.

### **Section 2: Development of ideas towards a Design Proposal (30 marks)**

This is where the more able candidates tend to gain significantly more marks than others.

- ◆ Development of ideas can be aesthetic, can use information from the research material supplied with the topics, can look at construction/production methods, Standard parts etc. All should show progression, sketches must be well annotated and relevant to the topic.
- ◆ Decisions should be made and highlighted throughout the folio.
- ◆ Candidates who score high marks in this section **usually consider technical as well as aesthetic development**. Candidates can also source and use other relevant research material.

There was more evidence of candidates trying to develop more than two ideas. When this happens, candidates tend to duplicate development rather than look at new areas to develop. This duplication does not accrue marks.

This section is awarded 30 marks and should be where most of the marks are gained by candidates; this was not the case in some instances.

The average mark for this section is 12, which is lower than the average for section 1.

Candidates who did not score well showed a lack of knowledge in, either, manufacturing process or related materials.

### **Section 3: Communication**

This is split into three sections:

#### **Section 3a) Communication of ideas towards a design proposal (10 marks)**

The marks awarded for this section are for the communication of information, both graphical and textual, throughout the Design Assignment. Examiners are looking for links to the information given, use of the specification, and progression of ideas and developments towards a final design proposal. Candidate folios that performed well had a flow which clearly demonstrated this.

#### **Section 3b) Recording decisions made in producing a design proposal (10 marks)**

Again, marks are allocated right across the folio for this. In many cases, decisions made were not justified and evaluated, so it was not clear why they had been reached. Decisions in many cases were just plucked out of the air. This area is still a problem for candidates.

#### **Section 3c) Communication of Design Proposal (5 marks)**

More centres are now using Computer modelling in this section, which is aiding candidates with less ability in manual graphics.

### **General Comments on Design Assignment**

Markers indicated that the level of response was slightly poorer than last year. There were, however still some outstanding folios.

The use of the research information given is minimal in some cases, which is why some candidates perform less well in the development stage. This is still the case with the anthropometric data.

### **Areas in which candidates performed well**

- ◆ In the question paper, candidates generally performed well in Question 1.
- ◆ In general, candidates performed well in the generation of ideas stage of the Design Assignment.

### **Areas which candidates found demanding**

#### **Question paper**

- ◆ Question 2(b), 4(b)ii, 4(b)iii, 5(c)

#### **Design Assignment**

Candidates sometimes do not leave themselves enough room to adequately develop their ideas. There is still some difficulty with this section for less able candidates. The classroom teacher has a very important role in guiding candidates during the preparation stage before they commence their Design Assignments. Candidates must be encouraged to choose the

task carefully so that the topic suits their strengths and gives them the opportunity to perform to their best ability.

Some Design tasks allow more creativity aesthetically, while other allows for more technical detail and development.

## **Advice to centres for preparation of future candidates**

Centres are advised to use the exemplar material on the SQA website.

SQA's Understanding Standards website is a valuable source of information on assessment procedures.

While there is an understandable temptation to use more than 10 hours for the Design Assignment, evidence suggests that this has an adverse effect on candidate's performance in the question paper.

The classroom teacher has an important role in teaching candidates about planning the structure of a Design Assignment to make best use of the eight pages available. The choice of topic is also important. Guidance in choosing a topic that will allow the candidate to show their strengths is vital. This should not however result in an entire cohort being directed to a topic.

Preparation for the question paper should include training in examination techniques and acceptable responses. Candidates will struggle to produce extended answers in the final exam if they have not been used to doing so in class. Candidates should be encouraged to discuss, debate, argue so that they can acquire a technical vocabulary that will enable them to make acceptable answers to questions in the final examination.

## Statistical information: update on Courses

Number of resulted entries in 2013	2382
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Number of resulted entries in 2014	2369
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## Statistical information: Performance of candidates

### Distribution of Course awards including grade boundaries

Distribution of Course awards	%	Cum. %	Number of candidates	Lowest mark
Maximum Mark 140				
A	12.8%	12.8%	303	96
B	21.1%	33.9%	500	81
C	31.7%	65.6%	752	66
D	14.8%	80.5%	351	58
No award	19.5%	-	463	-

## General commentary on grade boundaries

- ◆ While SQA aims to set examinations and create marking instructions which will allow a competent candidate to score a minimum of 50% of the available marks (the notional C boundary) and a well prepared, very competent candidate to score at least 70% of the available marks (the notional A boundary), it is very challenging to get the standard on target every year, in every subject at every level.
- ◆ Each year, SQA therefore holds a grade boundary meeting for each subject at each level where it brings together all the information available (statistical and judgemental). The Principal Assessor and SQA Qualifications Manager meet with the relevant SQA Business Manager and Statistician to discuss the evidence and make decisions. The meetings are chaired by members of the management team at SQA.
- ◆ The grade boundaries can be adjusted downwards if there is evidence that the exam is more challenging than usual, allowing the pass rate to be unaffected by this circumstance.
- ◆ The grade boundaries can be adjusted upwards if there is evidence that the exam is less challenging than usual, allowing the pass rate to be unaffected by this circumstance.
- ◆ Where standards are comparable to previous years, similar grade boundaries are maintained.
- ◆ An exam paper at a particular level in a subject in one year tends to have a marginally different set of grade boundaries from exam papers in that subject at that level in other years. This is because the particular questions, and the mix of questions, are different. This is also the case for exams set in centres. If SQA has already altered a boundary in a particular year in, say, Higher Chemistry, this does not mean that centres should necessarily alter boundaries in their prelim exam in Higher Chemistry. The two are not that closely related, as they do not contain identical questions.
- ◆ SQA's main aim is to be fair to candidates across all subjects and all levels and maintain comparable standards across the years, even as arrangements evolve and change.