



## External Assessment Report 2012

Subject(s)	Product Design
Level(s)	Higher

The statistics used in this report are pre-appeal.

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

In general there was a poorer candidate response this year compared to that of recent years. The reason for this is not obvious — it is evidenced by slightly poorer responses across the entire paper. This was also commented upon by Markers.

There was minimal change in the set out of the paper with a mix of short response and extended answer questions.

Markers indicated that there were less outstanding Design Assignment folios accruing full or near full marks. Overall exam performance was poorer than last year.

Candidates generally scored higher marks in the Design Assignment than in the Question Paper. This is in line with previous years.

Year	2006	2007	2008	2009	2010	2011	2012
Question paper (average mark)	35	35.3	35.3	33.2	36.3	36.4	32.5
Design Assignment (average mark)	42.6	41.2	42.3	42.5	42.6	42.9	40.5

### Question 1 (30 marks)

Generally responses to Question 1 were poorer than previous years.

- a As in previous years, many candidates' specification points were still 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 poorly - averaging 1.6/6. Candidates could not justify the use of manufacturing methods to the component parts of the storage units. This question could have been answered either by justifying batch, mass, continuous flow, etc. or by justifying injection moulding, bending, cnc.. Etc.
- d Slightly disappointing.

e Answered quite well.

f Although this was answered quite well, a significant proportion of candidates could not differentiate between the target market and end users in this question.

### **Question 2 (6 marks)**

a (2 marks) Answered well.

b (2 marks) Answered reasonably well.

c (1 mark) The only answer acceptable was to make it lightweight. On reflection, this disadvantaged candidates and adjustments were made to overcome this.

### **Question 3 (6 marks)**

Candidates answered this question in a manner that generally did not show an understanding of the use of modelling in the design process. Candidates generally could at best give one reason for each type of modelling.

### **Question 4 (4 marks)**

a (2 marks)

b (2 marks) Intellectual property rights, patent and copyright are areas where candidates have struggled in the past. It was pleasing to see a slight improvement in the responses to this question this year.

### **Question 5 (9 marks)**

a (3 marks) Anthropometrics — this was answered quite well by candidates. They showed a familiarity with the needs of the information required for this product.

b (3 marks) Physiology — this was testing for candidates, who found analysing this concept in relation to the product demanding.

c (3 marks) Psychology — answered slightly better than Physiology, but candidates tended to focus on only one of the users of this device, which restricted their answers.

### **Question 6 (9 marks)**

a (2 marks) Disappointing responses to this question. This type of question could have been asked at Standard Grade, yet averaged 0.6/2.

b (2 marks) Mixed responses to this question.

c (3 marks) This was answered reasonably well.

d (2 marks) A straightforward question on alloys where candidates could give one valid reason but some struggled to give two.

### **Question 7 (7 marks)**

- a (4 marks) Another question where candidates seemed to be out of their comfort zone when the obvious design factors were denied them. Candidates tended to waffle and generalise and, in some cases, come back to aesthetics to answer this question.
- b Again most could give one reason and struggled for two.
- c (3 marks) Most could give basic descriptions of both but few could expand to gain full marks.

### **Design Assignment**

Centres were, as every year, given a choice of design options based on a theme. The range of tasks was devised to give as much opportunity as possible to candidates while being able to keep a level of control on the assessment process.

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

The Design Assignment followed the same format — candidates are 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 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 are still not 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 room to gain marks in the rest of the folio. Some time spent before in class looking at the balance of work, and relating this to the Design Assignment specification, could minimise this problem.

### **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.

Developments of ideas can be aesthetic, can use information from the research material supplied with the Design Assignment 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 being made throughout the folio and should be

highlighted. 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 consider. 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.

(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 3 (a) 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. The candidate folios that performed well had a flow which clearly demonstrated this.

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

Again, marks are allocated right across the folio for this. In many cases, decisions made were not justified and evaluated, so that 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 3 (c) Communication of Design Proposal**

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 of the Design Assignment. This is particularly still the case with the anthropometric data.

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

In the Question Paper, candidates performed well in questions 1(a), 1(b),1(e), 2(a), and 2 (b). In general, candidates performed well in the generation of ideas stage of the Design Assignment.

## **Areas which candidates found demanding**

### **Question Paper**

Question 1(c) Candidates could not justify manufacturing methods and processes.

Question 1(d) Candidates could not identify safety issues and explain.

Question 1(f) Some candidates could not differentiate between the target market and end user.

Question 2(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 the 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 others allow for more technical detail and development.

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

Make sure that the exemplar material on the SQA's website is being used to illustrate the format for the Design Assignment.

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 learners 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 candidates to show their strengths is vital. This should not, however, result in an entire cohort being directed to the same topic.

Preparation for the Question Paper must consist of training in examination techniques and acceptable responses. It is no use expecting candidates to give extended answers in the final exam if they have not been used to doing so in class. Candidates should be encouraged to discuss, debate, and 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 2011	2441
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Number of resulted entries in 2012	2452
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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	11.1%	11.1%	272	94
B	24.0%	35.1%	588	79
C	32.1%	67.2%	788	65
D	14.5%	81.7%	355	58
No award	18.3%	100.0%	449	-

## 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.