A-LEVEL
DESIGN AND TECHNOLOGY: PRODUCT DESIGN

7552/2 – Paper 2
Report on the Examination

7552
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General Comments

This was the first sitting of this paper, which is the second paper for the AQA A-Level in Product Design.

The paper is structured in two sections and totals 80 marks, making up 20% of the overall qualification.

All questions are now compulsory and answers are recorded in an integrated question and answer booklet.

Where students successfully responded to the command word in the question, they were able to access the higher mark bands.

Where students were given stimulus material, low level responses were typified by observations without greater depth of understanding or application to the context given.

Students find knowledge recall questions accessible, but often find application questions difficult, failing to bring in their material and process knowledge to explain impact on a given context.

Students are advised to show their working out when answering the maths questions, as this may allow them to access method marks for early calculations where the final answer may be inaccurate.

Question 1

- Students were asked to compare two drills. The question was structured to give guidance to students with a table of data.
- The majority of responses referred to this data. Lower level responses quoted the data without expanding on the information or giving any insight as to the impact on the two drills.
- When students performed well they were able to expand on the points, providing technical knowledge of how the data provided had impacted on the design of the products.

Question 2

- Students were asked to evaluate the impact of the WEEE directive on manufacturers of portable electronic hand tools.
- This question covers a specific area of the specification not directly referenced in the previous specification.
- Students generally understood the concept of WEEE, but very rarely were they able to give specifics relating to the directive, with most responses referring to making portable power tools from recyclable materials rather than dealing with the electrical aspects of the product specifically.
- Where students addressed the changes made by manufacturers to comply with the directive they performed well, accessing the higher mark band.

Question 3

- Students were asked to explain ways that cordless power tools can be designed to be disassembled.
- Students made relevant suggestions for disassembly, covering consumer maintenance and end of life disposal.
- However, students often failed to explain their points sufficiently to access the second mark.
- Most students referred to the cordless drill from 01 although the question was more general.
- Points referring to the removal of drill bits and unclipping the rechargeable battery pack only accessed the lower mark band.

Question 4

- The first maths question in the paper. This was reasonably well attempted although some students produced bar charts or scatter graphs. When students constructed box plots the main confusion was the plotting of the Mean rather than Median result.
- The calculation of the upper and lower quartiles was sometimes confused.

Question 5

- A maths fault probability question that required students to multiply the probability of errors A and B and then add the probability of C.
- When students started correctly with errors A and B, they generally picked up full marks.
- The most common wrong answer was 220, where the rate of fault C was correct, but faults A and B had been added together rather than multiplied.

Question 6

- Students were asked to state ways that quality assurance procedures and policies could reduce the rate of errors in a die cutting context.
- High level responses were exemplified by procedures that reduced errors rather than identified errors post production.
- When students stated general quality assurance procedures rather than relating directly to the die cutting context, they found it difficult to give four distinctly different procedures or policies.

Question 7

- Students were asked to explain specific virtual modelling techniques used in pre-production testing of a submarine.
- High level responses were exemplified by reference to both FEA and CFD testing with relevant explanations related directly to the submarine context
- Lower level responses included general comments about testing underwater without offering detail of the virtual test or the reasons for use.

Question 8

- Students were asked to define the term Total Quality Management.
- It was clear from responses that many students were not clear on the meaning of the term, with many talking about controlling the total quality of the product throughout production
- Full mark responses referred to the use of continuous improvement and feedback from all members of the workforce.

Question 9

- Students were asked to give a specific application for a go no-go gauge and reasons for its use
- When students gave a specific application, they generally were able to give two good reasons for its use.
- Where the application given was general, students tended to access a single mark for use, referring to testing within a tolerance range.

Question 10

- Students were asked to state characteristics associated with the Memphis design group.
- Responses were varied in detail with low level responses confusing characteristics from a range of design movements/styles.
- When students gave very short responses, it was difficult to reward marks due to lack of clarity.

Question 11

- Students were asked to describe methods for conserving energy and materials.
- Students recognise the need for CAD simulations prior to manufacture and discuss material saving methods fairly well.
- Conservation of energy tends to be discussed on a more superficial level.
- High level responses were exemplified by described points that covered both conservation of energy and materials.
- Low level responses tended to be superficial stating a limited number of conservation methods with very little description.

Question 12

- The final maths question required students to calculate the mass of a component after galvanising.
- Students found the unit conversion difficult.
- The application of volume x density was recognised by most students.
- Students tended to lose marks with unit conversion which led to a weight calculation which was out by either a factor of 10 or 100.

Question 13

- Students were asked to compare two radios referring to developments in microelectronics and materials.

- Responses were generally disappointing with regard to their depth. Most students stated content from the data tables but failed to explore this in detail.
- When students were able to recognise the impact of the developments mentioned, they performed well.
- High level responses were exemplified by students who expanded on each of the points in the data table adding technical knowledge and understanding.
- Low level responses quoted directly from the data table gave little further information for comparison.

Question 14

- Students were asked to state reasons why a designer may use a focus group.
- Responses generally gave two distinct reasons for use of a focus group, but the final reason was often a repeat of the first.
- Reasons often referred to information that could be gathered from a focus group making it hard for the student to give three distinctly different reasons.
- When students gave reasons for the use of a focus group rather than another investigation method, they found it easier to give three different reasons.

Question 15

- Students were asked to explain the meaning of the EC energy label.
- Many students failed to state the name of the label, but do recognise its use, for displaying energy efficiency.

Use of statistics

Statistics used in this report may be taken from incomplete processing data. However, this data still gives a true account on how students have performed for each question.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the Results Statistics page of the AQA Website.