AQA

ASSESSMENT and
QUALIFICATIONS
ALLIANCE

General Certificate of Education

Design and Technology: Systems & Control Technology 1556

SYST1 Materials, Components and Application

Report on the Examination

2010 examination - June series

General

This was the second examination series of the new GCE Design & Technology: Systems and Control Technology specification at AS and the first examination series at A2. Centres should be highly commended for the quantity of work they have had to undertake in assimilating the requirements of the new specification, and in the amount of time they must have taken in preparing their candidates for the new format of examination. The quality of responses suggested that candidates had been well prepared for the examination in both the written and design based questions.

This year the SYST1 paper was marked online and candidates should be aware that they should only answer questions in the spaces allocated on the paper and use the additional answer sheets if their answer extends outside the allocated area. Candidates must also ensure that any additional sheets they use are fully labelled with their name, centre number and candidate number.

The use of sketching and annotation continues to be of a high standard in both the short and long answer questions.

Section A - Compulsory

Question A1(a)
This question was well answered by the majority of candidates with a wide variety of examples being used.

Question A1(b)
The majority of candidates could provide an example, however a significant number thought that hardwood related to the physical properties of the material.

Question A2(a)
The majority of candidates gained marks on this question although only the better answers made reference to the limits of the range.

Question A2(b)
Many candidates described a device such as a 7 segment display but failed to explain why it was digital in nature.

Question A3
A well answered question with responses showing a clear understanding of the terms. Many candidates failed to label pivot points on their diagrams so it was often difficult to ascertain if the system would operate correctly.

Question A4(a)
This question was well answered by the candidates. The majority could identify three or more stages in the operation of the circuit. The main confusion was with the effect of voltage and current on the transistors.

Question A4(b) (i)
A well answered question.

Question A4(b) (ii)
The majority of candidates achieved half marks or better.

Section B – Answer one of two optional questions.
In this paper the majority of candidates opted to answer question 6 as opposed to question 5, however both questions appeared to test candidates in equal measure.

Question B5(a)(i)
Over three-quarters of candidates gained at least half marks on this question.

Question B5(a)(ii)
Nearly all candidates could produce a suitable sketch for a method of testing tension.

The descriptions of the system provided often showed little understanding of the amount of force required to break a sample. Either the sample was excessively large or the force was not of the correct order of magnitude.

Most candidates clearly identified the data that needed to be collected but failed to use appropriate measuring devices especially for measuring extension.

Many candidates did not describe how the data was analysed but just said it would be entered into a computer.

Question B5(b)(i)
Over three-quarters of candidates gained at least half marks on this question.

Question B5(b)(ii)
Most candidates could produce a suitable sketch for a method of testing compression. Although many candidates placed the sample in a vice and assumed that the distance the jaws moved was a representation of the force applied.

The descriptions of the system provided often showed little understanding of the amount of force required to break a sample. Either the sample was excessively large or the force was not of the correct order of magnitude.

Most candidates clearly identified the data that needed to be collected but failed to use appropriate measuring devices especially for measuring extension.

Many candidates did not describe how the data was analysed but just said it would be entered into a computer.

Question B6 (a)
Nearly all candidates were able to provide good quality answer to this question. Answers made clear reference to the bullet points in the question. Candidates often forgot to switch outputs off but made very good use of feedback loops especially in relation to inputs.

Question B6 (b)
This question was generally well answered, although only a small number of candidates gained full marks.

Many answers showed a system that was not capable of producing a sequence. Only the better responses made clear reference to the input and output requirement and any interfacing needed to ensure compatibility between the different subsystems.

Section C - Compulsory

Question C7 (a)
Nearly all of candidates gained at least half marks for this question. Candidates showed suitable sensors mounted in appropriate positions. Only the better answers made reference to the type of output produced for the door control system.

Question C7 (b)
This question was well answered by the majority of candidates. Most solutions would clearly open and close the door and produce the required amount of movement. Only the better answers considered the speed of movement or showed a method of limiting the amount of travel.

The rack and pinion was the preferred solution by most candidates although a wide range of alternatives were shown including pneumatics.

Question C7 (c)
A generally well answered question with the majority of candidates using a sensor on each side of the door and a latching circuit of some description.

Many candidates used a PIC based control system but failed to explain the programming required to provide this function.

Question C7 (d)
A reasonably well answered question, with candidates showing the ability to 'join up' their thinking from the previous parts and create realistic and functional complete systems.

Only the better answers made reference to suitable materials and methods of construction.

Question C7 (e)
Most candidates attempted to show how the system is attached to the door but often failed to fix the prime mover in any way therefore the door would not operate.

Mark Ranges and Award of Grades

Please see the following link:

http://www.aqa.org.uk/over/stat.html