

General Certificate of Education
June 2008
Advanced Subsidiary Examination



**DESIGN AND TECHNOLOGY:
SYSTEMS AND CONTROL TECHNOLOGY
Unit 3 Design and Market Influences**

SCT3

Wednesday 4 June 2008 9.00 am to 10.30 am

For this paper you must have:

- a lined 8-page answer book (AB08) which is provided separately
- normal writing and drawing instruments
- two sheets of A3 paper for use with Question 2 (enclosed).

Time allowed: 1 hour 30 minutes

Instructions

- Use black ink or black ball-point pen. Use pencil and coloured pencils only for drawing.
- Write the information required on the front of your answer book. The *Examining Body* for this paper is AQA. The *Paper Reference* is SCT3.
- Answer **all** questions.
- Two sheets of A3 paper are provided for use with **Question 2**. No further sheets are to be used.
- Securely attach the two sheets of A3 paper to your answer book at the end of the examination.

Information

- The maximum mark for this paper is 100.
Four of these marks will be awarded for using good English, organising information clearly and using specialist vocabulary where appropriate.
- The marks for questions are shown in brackets.

Advice

- Illustrate your answers with sketches and/or diagrams wherever you feel it is appropriate.

Answer **all** questions.

You are advised to spend about 20 minutes on **Question 1** and about 1 hour 10 minutes on **Question 2**.

Theme: Automatic dispensing systems for food, drink and medicines

1 Modern society relies greatly on automated systems.

- (a) Identify **three** key factors to explain why this is the case. *(3 × 2 marks)*

- (b) Describe in detail **two** different vending machines that dispense food or drink and explain why they benefit the consumer. *(2 × 3 marks)*

- (c) Describe **two** negative effects of food or drink vending machines. *(2 × 1 marks)*

- (d) Identify **three** hygiene requirements of any automated system that could be used to deliver food. *(3 × 2 marks)*

Use the **two** separate A3 sheets provided to answer **Question 2** where appropriate.
Clearly indicate the sections of the question you answer on the sheets.

- 2 (a) (i) With the aid of diagrams describe **two** systems for producing a time delay of two hours. At the end of the time period each system should produce a short electrical pulse. *(2 × 6 marks)*
- (ii) For **one** of your systems described in part (a)(i), show in detail how it could be developed to produce time delays of two, four, six and eight hours. *(6 marks)*

- (b) The diagram below shows a tablet measuring 10 mm diameter and 2 mm thick.



Using annotated sketches, describe a system that will store up to 48 tablets and be able to dispense them singularly. *(10 marks)*

- (c) Develop your ideas from parts (a) and (b) into an automatic dispensing system that can safely store and dispense tablets at the correct times.

Your design should:

- hold the tablets in secure hygienic conditions,
- dispense the tablets automatically,
- be capable of dispensing one or two tablets at regular intervals of two, four, six or eight hours,
- be capable of dispensing at least six times before refilling is required,
- warn the user that the tablet has been dispensed and is ready to be taken,
- state materials/components and how they are assembled or manufactured.

Marks will be awarded as follows:

quality of communication,	<i>(8 marks)</i>
development of the system,	<i>(20 marks)</i>
originality and innovation,	<i>(4 marks)</i>
suitability of materials and components,	<i>(6 marks)</i>
overall assembly,	<i>(4 marks)</i>
explanation of manufacturing methods.	<i>(6 marks)</i>

END OF QUESTIONS

There are no questions printed on this page