Version 1: 0905

ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Education

Design and Technology: System and Control Technology Unit 6
Specification 6556

Mark Scheme

2005 examination - June series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Quality of Written Communication

The following marks are allocated to the quality of the candidate's written communication. Make a separate assessment of the candidate's overall ability as demonstrated across the paper using the criteria given below.

Performance Criteria	Marks
The candidate will express complex ideas extremely clearly and fluently. Sentences and paragraphs will follow on from one another smoothly and logically. Arguments will be consistently relevant and well structured. There will be few, if any, errors of grammar, punctuation and spelling.	4
The candidate will express moderately complex ideas clearly and reasonably fluently, through well-lined sentences and paragraphs. Arguments will be generally relevant and well structured. There may be occasional errors of grammar, punctuation and spelling.	3
The candidate will express straightforward ideas clearly, if not always fluently. Sentences and paragraphs may not always be well connected. Arguments may sometimes stray from the point or be weakly presented. There may be some errors of grammar, punctuation and spelling, but not such as to suggest a weakness in these areas.	2
The candidate will express simple ideas clearly, but may be imprecise and awkward in dealing with complex or subtle concepts. Arguments may be of doubtful relevance or obscurely presented. Errors in grammar, punctuation and spelling may be noticeable and intrusive, suggesting weaknesses in these areas.	1

NB This mark scheme is intended as a guide to the type of answer expected but is not intended to be exhaustive or prescriptive. If candidates offer other answers which are equally valid **they must be given full credit.**

Many responses at this level are assessed according to the **quality** of the work rather than the number of points included. The following level descriptors are intended to be a guide when assessing the quality of a candidate's response.

The candidate has a basic but possibly confused grasp of the issues. Few correct examples are given to illustrate points made. Description may be unclear.

(low mark range)

The candidate has some knowledge but there will be less clarity of understanding. Some correct examples given to illustrate points made. Description better but unclear or confused in parts.

(mid mark range)

The candidate has a thorough understanding of the issues and has provided relevant examples to support the knowledge shown. This candidate's answer shows clear evidence of understanding.

(high mark range)

Unit 6

Question 1

(a)	Suitable detection system e.g. Micro switch		2 marks	
	Method of activation (only by guard)		2 marks	(2 x 4 marks)
(b)	(i)	Start switch	1 mark	
		Method of locking on	3 marks	
		Off systems	1 mark	
		Guard switch	1 mark	
		Lock out when supply removed	3 marks	(8 marks)
	(ii)	Explanation of circuit		(4 marks)
(c)	Securing system		2 marks	
	Security for opening device		2 marks	(4 marks)

Total 24 marks

Question 2

(a)	(i)	Suitable process	1 mark	
		Permanent method	1 mark	
		Description of process	4 marks	(2 x 6 marks)
	(ii)	Suitable non-permanent method	1 mark	
		Suitable materials	1 mark	
		Explanation	2 marks	(2 x 4 marks)
	(iii)	Each joint with reason	2 marks	(2 x 2 marks)

Total 24 marks

Question 3

Each relative advantage with explanation (2 marks)
e.g. Relative cost related to manufacture, availability of power source, power output from power source, versatility/portability, necessity to recharge, need for gearing, ability to control, safety, length of use possible, convenience of power source, etc.

Total 24 marks

Question 4

(a)	Selection of product/system		1 mark	
	Necessity of a destructive test		2 marks	
	Detailed explanation		3 marks	(2 x 6 marks)

(b)	Support system for switch	1 mark	
	Method of operating the switch	1 mark	
	Explanation of testing procedure	6 marks	
	Observation/measurements taken	2 marks	
	Use of observations	2 marks	(12 marks)

Total 24 marks

Question 5

(a)	Suitable method	1 mark	
	Explanation of process e.g. Casting, forging, vacuum forming	4 marks	(5 marks)
(b)	(i) Suitable material	2 x 1 mark	
	(ii) Property	2 x 1 mark	(4 marks)
(c)	Each advantage with explanation e.g. Vacuum forming produces most of case in one – less use of materials – quicker production times – more complex forms – etc.	2 marks	(3 x 2 marks)
(d)	Greater strength	2 marks	
	Improved grain formation etc.	2 marks	(4 marks)

Total 24 marks

Question 6

(a)	Each relevant stage in a logical order	1 mark	(12 marks)
(b)	(i) Suitable system	1 mark	
	Capable of moving load	1 mark	
	Suitable speed of operation	1 mark	
	Cage remains in place when power removed	1 mark	(2 x 4 marks)
	(ii) Each advantage	1 mark	(4 x 1 mark)

Total 24 marks

TOTAL MARKS ON PAPER	**144**
MAX MARKS TO BE AWARDED	**96**
QWC	**4**
TOTAL	**100**