



ASSESSMENT and
QUALIFICATIONS
ALLIANCE

Mark scheme

June 2003

GCE

Design and Technology

Systems and Control

Unit SCT3

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Systems and Control Technology: Unit 3

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.

<i>Performance Criteria</i>	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)

Question 1

- (a) (i) Reduction in street crime, vandalism, greater sense of security, reduced insurance, better use of limited resources (Police) (Each point 2 marks) (4 marks)
- (ii) Feeling watched, *Big Brother*, lack of privacy (Each Point 1 mark) (2 marks)
- (b) (i) Lighting requirements
Overlap of cameras
Field of view
Blind spots
Security of camera
To be seen or hidden (Each point 2 marks) (6 marks)
- (ii) Need for operator, can only identify, need recording facility, blind-spots, need to be integrated into a larger system, only work in light, easily seen, easily damaged (Each point 2 marks) (8 marks)

Total 20 marks**Question 2**

- (a) (i) Requirements 270 degree angle (2 marks)
Slow rotation (2 marks)
Capable of coping with load (2 marks)
Some form of gearing down e.g. worm and pinion (2 marks) (8 marks)
- (ii) Reversing circuit (4 marks)
Limit switches on each side (2 marks)
Auto reversing system (4 marks) (10 marks)
- (iii) Capable of moving through 45 degrees (2 marks)
Position lock (2 marks)
Able to cope with load (2 marks)
e.g. worm and pinion, screw thread, double acting pneumatic cylinder, cam etc (6 marks)
- (b) Quality of communication (8 marks)
- Development of system
Tilting System (4 marks)
Rotation System (4 marks)
Attachment to bracket (4 marks)
Design of bracket (4 marks)
Ability to function (4 marks) (20 marks)
- Originality and innovation (4 marks)
- Appropriateness of materials and components
Tilt system (2 marks)
Rotation system (2 marks)

Bracket	(2 marks)	
Wall attachment	(4 marks)	(10 marks)
Method of construction		
Movement systems	(6 marks)	
Bracket mountings	(4 marks)	(10 marks)

Total 76 marks

TOTAL MARKS FOR PAPER: 100