

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS**

**Advanced Subsidiary GCE**

**D&T: SYSTEMS AND CONTROL TECHNOLOGY      2521/01**

UNIT 4 Systems and Control Technology 1

**Papers 2521/01 and 2521/02 should both be available to candidates for the full 2 hour examination session**

Tuesday      **10 JANUARY 2006**      Morning      1 hour 12 minutes

This paper is to be taken with 2521/02 in the same examination session of 2 hours

Candidate Name	Centre Number	Candidate Number												
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**TIME**      Approximately 1 hour 12 minutes should be spent on this paper (Paper 2521/01)

**INSTRUCTIONS TO CANDIDATES**

- This paper is to be taken with 2521/02 in the same examination session of 2 hours.
- Write your Name, Centre Number and Candidate Number in the boxes above.
- This paper contains five questions – you are to answer any **three** questions.
- Write your answers in the spaces on the question paper.

**INFORMATION FOR CANDIDATES**

- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this paper is 54.
- Please note that the instruction ‘discuss’ denotes that you should:
  - identify **three** relevant issues/points raised by the question;
  - explain why you consider **two** of these issues/points to be relevant;
  - use a specific example/evidence to support your answer.
- All dimensions are in millimetres.

FOR EXAMINER'S USE	
1	
2	
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5	
<b>TOTAL</b>	

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**This question paper consists of 13 printed pages and 3 blank pages.**

Answer three questions in the spaces provided

1 Fig. 1 shows an adjustable rocking chair for a baby.



Fig. 1

(a) Give three justified design requirements for a baby's adjustable rocking chair.

- 1 ..... [1]
- 2 ..... [1]
- 3 ..... [1]

(b) Describe three quality control checks that may be carried out during the manufacture of the rocking chair shown in Fig. 1.

- 1 ..... [2]
- 2 ..... [2]
- 3 ..... [2]



2 (a) Give **four** methods of generating energy from water.

1 .....[1]

2 .....[1]

3 .....[1]

4 .....[1]

(b) Describe, using sketches and notes, **two** methods of obtaining useful energy from the sun.

Method 1

[4]

Method 2

[4]



3 Fig. 2 shows a 300mm rule used by secondary school students.



Fig. 2

(a) Give three justified design requirements for a rule to be used by a secondary school student.

- 1 ..... [1]
- 2 ..... [1]
- 3 ..... [1]

(b) Give three reasons why the rule shown in Fig. 2 is suitable for high volume production.

- 1 ..... [1]
- 2 ..... [1]
- 3 ..... [1]

(c) Explain **three** factors that determine the life expectancy of a product.

1 .....  
.....  
..... [2]

2 .....  
.....  
..... [2]

3 .....  
.....  
..... [2]

(d) Discuss the factors that must be considered when designing products for the teenage market.

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..... [6]

P  
Q  
S

[Total: 18]

4 Fig. 3 shows an apron used in practical lessons by secondary school students.



Fig. 3

(a) Give three justified design requirements for an apron used in practical lessons by secondary school students.

- 1 ..... [1]
- 2 ..... [1]
- 3 ..... [1]

(b) Give three ways in which the manufacturing costs of the apron shown in Fig. 3 could be kept as low as possible.

- 1 ..... [1]
- 2 ..... [1]
- 3 ..... [1]



(c) Explain, using **three** examples, the need for personal protective equipment when working in a manufacturing environment.

1 .....  
.....  
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..... [2]

2 .....  
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.....  
..... [2]

3 .....  
.....  
.....  
..... [2]



5 Fig.4 shows an examination desk to be used by secondary school students.

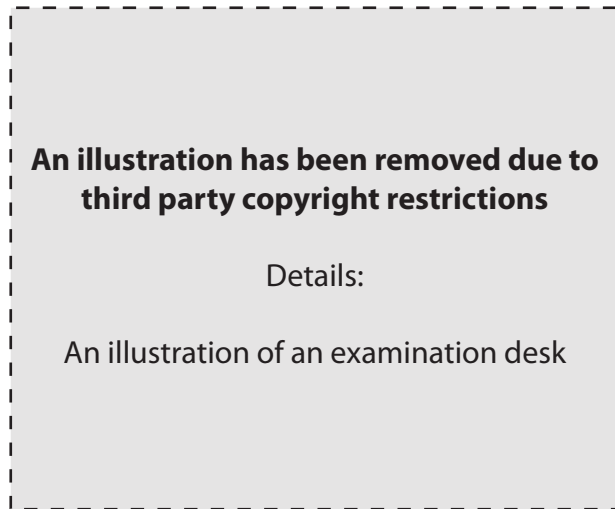


Fig.4

(a) Give three justified design requirements for an examination desk to be used by secondary school students.

- 1 ..... [1]
- 2 ..... [1]
- 3 ..... [1]

- (b) Describe, using sketches and notes, **three** examples where anthropometric data has been taken into account in the design of the examination desk shown in Fig. 4.

Example 1

[3]

Example 2

[3]

Example 3

[3]







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