

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

Advanced Subsidiary GCE

COMPUTING

2508

Computer Systems Development and Practical Applications

Thursday

8 JUNE 2006

Afternoon

1 hour 30 minutes

Candidate Name	Centre Number	Candidate Number												
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TIME 1 hour 30 minutes

INSTRUCTIONS TO CANDIDATES

- Write your name in the space above.
- Write your Centre number and candidate number in the boxes above.
- Answer **all** the questions.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- If you run out of space for an answer, continue on the spare pages at the back of the booklet.
- If you use these spare pages, you must write the question number next to your answer. You can also use the spare pages for rough work.

FOR EXAMINER'S USE		
Question no.	Max. Mark	Mark
1	25	
2	6	
3	8	
4	12	
5	10	
6	16	
7	9	
WC	4	
TOTAL	90	

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 90 of which 4 marks are allocated to the assessment of the quality of written communication.
- You will be awarded marks for the quality of written communication where an answer requires a piece of extended writing.
- No marks will be awarded for using brand names of software packages or hardware.

This question paper consists of 10 printed pages and 2 lined pages.

1 A mail order firm employs a systems analyst to investigate current procedures and problems. Facts are collected using observation and interviews.

(a) Give **two** advantages and **two** disadvantages of each of these methods of fact finding.

Observation

Advantage 1
.....[1]

Advantage 2
.....[1]

Disadvantage 1
.....[1]

Disadvantage 2
.....[1]

Interviews

Advantage 1
.....[1]

Advantage 2
.....[1]

Disadvantage 1
.....[1]

Disadvantage 2
.....[1]

(b) (i) State **one** other method of fact finding.
.....[1]

(ii) Give **one** advantage and **one** disadvantage of this method.
Advantage
.....[1]

Disadvantage
.....[1]

(c) After analysing the current system, the systems analyst designs a new system.

Describe **four** different tasks to be carried out at the design stage.

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

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

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

Task 4
.....
.....
.....[2]

(d) The system has been in use for some time and requires software maintenance.

Explain why each of the following types of software maintenance may be necessary.

Corrective maintenance
.....
.....
.....[2]

Adaptive maintenance
.....
.....
.....[2]

Perfective maintenance

[2]

2 State and describe the **most suitable** method of changeover for each of the following applications.

(a) Introducing a new on-line seat booking system for an airline company, allowing seats to be booked by a number of travel agents.

Method of changeover
 Description

[3]

(b) Introducing new electronic point-of-sale terminals in a chain of twenty supermarkets.

Method of changeover
 Description

[3]

3 A school management team wishes to purchase new software to carry out administrative activities.

State a suitable type of application package for each of the following tasks, giving a reason for your choice.

(a) Creating a leaflet advertising new sixth form courses.

Type of software

Reason

.....

.....[2]

(b) Predicting AS grades for students from their end of term examination marks.

Type of software

Reason

.....

.....[2]

(c) Communicating with other schools using the Internet.

Type of software

Reason

.....

.....[2]

(d) Maintaining library book records.

Type of software

Reason

.....

.....[2]

4 A team has been asked to design software for use in a hospital administration department.

(a) Identify **four** factors that should be considered when designing a human computer interface (HCI). Give a reason why each is important.

Factor 1

.....

Reason

.....[2]

Factor 2

.....

Reason

.....[2]

Factor 3

.....

Reason

.....[2]

Factor 4

.....

Reason

.....[2]

(b) State **four** advantages of choosing custom written software instead of off-the-shelf software.

Advantage 1

.....[1]

Advantage 2

.....[1]

Advantage 3

.....[1]

Advantage 4

.....[1]

5 In a college examination system

- a candidate number uniquely identifies each student.
- examination marks awarded are read directly into the computer system using optical mark recognition (OMR).
- the data is verified and validated before processing.

(a) Explain what is meant by *data verification*.

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

(b) Explain what is meant by *data validation*.

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

(c) The candidate number contains a check digit.

Describe how a check digit could be calculated.

.....
.....
.....
.....
.....
.....
.....[4]

(d) Explain what is meant by *Optical Mark Recognition (OMR)*.

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

6 Management Information Systems (MIS) and expert systems are used in many computer applications.

(a) Explain the purpose of a MIS.

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

(b) Describe an expert system.

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

A company uses an expert system to assist with fault diagnosis of its equipment.

(c) State **four** benefits of using an expert system.

Benefit 1
.....[1]

Benefit 2
.....[1]

Benefit 3
.....[1]

Benefit 4
.....[1]

(d) Describe **two** limitations of using an expert system.

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

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

(e) State **four** advantages of using robots to manufacture components.

Advantage 1
.....[1]

Advantage 2
.....[1]

Advantage 3
.....[1]

Advantage 4
.....[1]

PLEASE TURN OVER FOR THE LAST QUESTION

7 The development of computer systems in banking has influenced the way that customers use banking facilities.

(a) State **three** facilities available to customers as a consequence of progress in computer technology.

1[1]

2[1]

3[1]

A bank's personnel department is concerned about the health risks that may be caused by the increased use of computer systems.

(b) State **three** different health risks that may give cause for concern. For each, suggest a method for reducing the risk.

Health risk 1

Method of reducing the risk

.....[2]

Health risk 2

Method of reducing the risk

.....[2]

Health risk 3

Method of reducing the risk

.....[2]

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