

ADVANCED SUBSIDIARY GCE
COMPUTING
Computer Fundamentals

F451

Candidates answer on the question paper.

OCR supplied materials:

None

Other materials required:

None

Friday 27 May 2011
Morning

Duration: 1 hour 30 minutes



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| Candidate forename | | Candidate surname | |
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| Centre number | | | | | | Candidate number | | | | |
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INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Answer **all** the questions.
- Do **not** write in the bar codes.

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 **100**.
- This document consists of **20** pages. Any blank pages are indicated.

1 (a) State what is meant by

(i) an input device

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

(ii) an output device

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

(b) A central heating system is used to control the heating in a house.

(i) State an automatic input device which would be used with this system, explaining why it is necessary.

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

(ii) State an automatic output device which would be used with this system, explaining why it is necessary.

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

2 (a) Describe the following types of data transmission:

(i) Serial data transmission

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

(ii) Parallel data transmission

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

(b) State a computer application which may use parallel data transmission, justifying your answer.

Application

.....

Justification

.....

..... [2]

3 A seaside town has a number of interactive information boards placed at intervals along the promenade. The purpose of the boards is to provide information to holidaymakers. A user might search for entertainment available or reasonably priced guest houses that have vacancies.

(a) State **two** peripherals which would be used at each site, justifying your answers.

Peripheral 1

Justification

..... [2]

Peripheral 2

Justification

..... [2]

(b) The data needs to be up to date so the information boards are connected in a network which is controlled from the tourist information office on the promenade.

State a method of connectivity which could be used and justify your choice.

Method

Justification

..... [3]

- (c) (i) The interface used by holidaymakers is a menus interface.

Explain why a menus interface was chosen for this application.

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..... [3]

- (ii) The interface used by workers in the tourist information office to book accommodation for holidaymakers is a forms interface.

Explain why a forms interface was chosen for this application.

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..... [3]

4 A car insurance firm collects data from its customers and stores it on a computer.

(a) The customer name is stored using the computer's character set.

(i) Explain what is meant by the character set of a computer.

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

(ii) Explain the use of code to represent a character set.

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

(b) When data is input, it must be verified and validated.

(i) When the details of a new customer are input to the system, the data must be verified. Describe **one** way that the data input can be verified.

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

(ii) One piece of data that is required is the make of car. An existence check and a presence check will be carried out on this data.

Describe what is meant by

existence check
.....
.....

presence check
.....
..... [2]

.....
..... [8]

[Turn over for next question]

5 A supermarket stores data about customers who have loyalty cards.

(a) Explain why some customers may be concerned about giving their personal details to the supermarket.

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..... [2]

(b) Describe steps the supermarket can take to reassure customers about their concerns.

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..... [5]

6 A systems analyst has been in charge of creating an automated production line for a factory.

(a) The analyst followed the stages of the systems life cycle.
Describe the purpose of **three** of the stages of the systems life cycle which the analyst must complete before the software can be written.

1
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..... [2]

2
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..... [2]

3
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..... [2]

(b) The analyst uses the waterfall model of the systems life cycle.
Describe the waterfall model.

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..... [3]

(c) Explain the importance of evaluating the system and the criteria that should be used in the evaluation.

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..... [4]

(d) Describe **two** types of maintenance which may need to be carried out on the finished system.

1
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..... [2]

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

7 A processor contains a number of special registers and buses.

(a) Describe the contents of the following special registers.

Memory Data Register (MDR)

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

Current Instruction Register (CIR)

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

Accumulator

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..... [2]

(b) Describe the use of different types of bus in the processor.

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..... [4]

8 Data is communicated between devices in a network.

(a) A protocol is needed in a network

State what is meant by a protocol.

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..... [2]

(b) Describe **three** parts of a protocol which would be necessary to allow communication in a network.

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

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

3
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..... [2]

- 9 (a) Describe each of the following types of operating system and give an example of where each could be used.

Multi-tasking

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.....
.....
.....

Use [4]

Multi-user

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.....

Use [4]

(b) (i) State what is meant by utility software.

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..... [1]

(ii) A student uses a computer to produce coursework for a number of subjects.

Explain how the student can use file handling utilities with the computer.

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..... [3]

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