OCR
Oxford Cambridge and RSA

Friday 16 June 2017 – Morning

A2 GCE INFORMATION AND COMMUNICATION TECHNOLOGY

G063/01 ICT Systems, Applications and Implications

Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:
None

Duration: 2 hours

Candidate forename		Candidate surname	

Centre number					Candidate number				

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. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- 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).
- 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 **120**.
- Quality of written communication will be assessed in questions marked with an asterisk (*).
- This document consists of **20** pages. Any blank pages are indicated.

Turn over

SECTION A

Answer **all** the questions.

1   Describe **two** characteristics of the software development methodology known as Rapid Application Development (RAD).

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2   Describe **two** differences between a batch processing operating system and a real time operating system.

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3 Describe **two** characteristics of the internet.

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[4]

4 Describe **three** methods by which mobile technology and networks can enable communication between people in different countries.

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[6]

5 A large supermarket chain has introduced a customer loyalty card scheme. It uses a Management Information System (MIS) to manage this.

(a) Describe **two** ways in which the MIS could be used to determine if the scheme was successful or not.

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[4]

(b) Describe **one** limitation of the use of the MIS for this purpose.

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.... **[2]**

6 Identify **two** limitations of modern portable devices such as smartphones and tablet computers. For each limitation identify how an advance in technology could overcome it.

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[4]

7   A hotel chain has developed a new self-service check-in desk system.

Explain **two** advantages of using a **pilot** installation method for the installation of the new system.

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[4]

8   An insurance company has a code of conduct that its employees have to adhere to.

   (a) Explain how **two** different principles of the Data Protection Act (1998) could be upheld by measures in the company's code of conduct.

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[4]

(b) Explain **two** advantages to the company of including conditions for ethical behaviour by its employees in its code of conduct.

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[4]

SECTION B

Answer **all** the questions.

Questions 9 to 18 concern The Brains Trust. The Brains Trust operates a group of schools.

Schools within The Brains Trust currently use word processing and mail merge to produce reports on their pupils.

9   The Brains Trust is trying to decide whether or not to upgrade the current reporting system used within the schools. Factors relating to costs and staff capability have already been considered.

Describe **two other** factors that The Brains Trust should consider before deciding whether to upgrade the reporting system.

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[4]

Turn over

Sigma Software has been commissioned to write a new reporting system for the schools.

10 The Brains Trust is Sigma Software's client and will be involved in several of the stages of the system life cycle. For each of the following stages, describe how The Brains Trust will be involved as a client.

Analysis...

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Design...

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Testing..

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[6]

11 Sigma Software has put together a project team that is led by a project manager.

(a) The project manager has used a Gantt chart to plan the project.

Describe how a Gantt chart could be used for this purpose.

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.... **[4]**

(b) The project manager leads the project team. A systems analyst and a tester are two of the members of the project team. Describe the responsibilities of the systems analyst and the tester.

Systems Analyst ....

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Tester...

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[4]

(c) The designers in the team design the input forms for the user interface. They have considered the layout of the forms, the fonts and the colours to be used.

Describe **two other** factors that they should consider when designing the input forms.

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[4]

(d) The designers apply the design tool known as the Model Human Processor (MHP) developed by Card, Moran and Newell to the design of the input forms.

Using examples, describe **two** ways in which the MHP can be applied to the design of the forms.

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[4]

(e) Sigma Software is investigating using a distributed database with horizontal or vertical partitioning for the new reporting system.

   (i) Identify **one other** method of database distribution Sigma Software could use.

   .... **[1]**

   (ii) Evaluate the decision to use horizontal partitioning as a method for distributing the new reporting database for The Brains Trust.

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   .... **[6]**

12 Following the installation of the new reporting system, The Brains Trust is to hold a review meeting.

Explain **two** reasons why a review meeting may be held.

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   .... **[4]**

Turn over

13 The Brains Trust is considering how to manage the change to the new reporting system across the schools. It has decided to conduct an audit of staff IT skills within the schools to assess the current level of staff capability.

Justify the decision to assess the current level of staff capability.

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.... **[6]**

14 The Brains Trust communicates with the staff in its schools using a range of mobile communication services, including email and text messaging.

Describe **two** impacts to The Brains Trust of staff using a range of mobile communication services.

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.... **[4]**

15 The Brains Trust also produces educational resources as well as running schools.

(a) Describe **two** reasons why The Brains Trust will want their company's data to remain confidential.

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[4]

(b) Explain how **authorisation** and **authentication** could be used to protect The Brains Trust's data.

Authorisation...

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Authentication..

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[4]

16 Each of the schools in The Brains Trust operate a client-server network that includes software applications servers. A network manager is required in each school to run the client-server network.

(a) One disadvantage of operating a client-server network is the cost of employing a network manager. Describe **two other** disadvantages of operating client-server networks.

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[4]

(b) Justify the decision to run software applications servers in the schools.

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.... **[6]**

17 Staff in the schools have access to a bulletin board and instant messaging to discuss teaching ideas.

Compare the use of a bulletin board with instant messaging for this purpose.

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.... **[4]**

Turn over

18* Identify **one** hardware or **one** software development that could impact on the pupils at schools in The Brains Trust.

Discuss how the development you have identified above could impact on the pupils at schools in The Brains Trust.

The quality of written communication will be assessed in the answer to this question.   **[11]**

Chosen hardware or software development ....

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END OF QUESTION PAPER

18

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