OCR
Oxford Cambridge and RSA

Wednesday 22 June 2016 – Morning

A2 GCE INFORMATION AND COMMUNICATION TECHNOLOGY

G063/01 ICT Systems, Applications and Implications

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

2

SECTION A

Answer **all** the questions.

1   Identify **two** items of documentation produced during the documentation stage of the systems life cycle and describe the purpose of each.

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Purpose ....

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Purpose ....

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[6]

2   Describe how prototyping could be used to develop an application.

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3 Describe **two** characteristics of a real time operating system that make it suitable for controlling an aeroplane's autopilot system.

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4 Compare the use of a cellular mobile phone with the use of a satellite mobile phone.

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5   Justify the use of a proxy server within a company's network.

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6   Describe the purpose of the **three components** of an expert system.

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7   Describe **two disadvantages** of using a parallel changeover strategy for installing a new reporting system in a school.

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8   Evaluate the effectiveness of hardware and software standards when using the internet.

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Turn over

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SECTION B

Answer **all** the questions.

Questions 9 to 14 concern ABC Homes which is a large company that specialises in building luxury homes.

9   ABC Homes has a headquarters in London. The headquarters is based in several different buildings. ABC Homes also has a number of regional offices throughout the UK.

   (a) ABC Homes runs both Local Area Networks (LANs) and virtual networks.

   Compare the characteristics of a LAN with the characteristics of a virtual network.

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(b) ABC Homes has fibre optic connections between the different buildings at its headquarters. It also has wireless access points installed in each building.

(i) Describe **two** advantages of using fibre optics to connect the different buildings together.

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[4]

(ii) Describe **two** advantages of using wireless communication within each building.

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[4]

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(c) ABC Homes plans to host its own website from its headquarters.

Describe **two** advantages to ABC Homes of having a leased line internet connection.

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[4]

10 ABC Homes installs home automation systems that control lighting, heating and security in the homes it builds. It has commissioned a custom written software application. The application will allow the devices to be controlled remotely through the use of a smartphone or tablet computer.

   (a) (i) A design specification is produced for the application.

   State the purpose of the design specification.

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   (ii) Identify **three** items that should be included in the design specification.

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   (b) The human computer interface for the application includes a forms-based dialogue.

   Evaluate the use of a forms-based dialogue for this application.

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(c) Explain why the designer should consider a user's mental model when designing the application.

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(d) Describe how a tester in the project team tests the application.

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11 ABC Homes operates a distributed database across its regional offices throughout the UK.

(a) Evaluate the choice of using a central database with remote local indexes across the regional offices.

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(b) Identify **two different security** issues relating to distributed databases. Describe how **each** issue can be overcome.

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[4]

12   ABC Homes uses an off-the-shelf package to design new homes for its customers.

   (a) Describe **two** ways in which a computer model of the house could be used by the company.

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   (b) Describe **two disadvantages** to ABC Homes of using an off-the-shelf package.

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(c) The management of ABC Homes has decided to replace the off-the-shelf package.

Explain why it will be important to consult with employees when deciding on its replacement.

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13 Explain the impacts that upgrading the operating system on all of its computers might have on ABC Homes. **[11]**

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Question 14 begins on page 16

Turn over

14* Identify **one** hardware **or** software development that could impact on the personal privacy of the staff who work for ABC Homes.

Discuss how the development you have identified above could impact on the personal privacy of the staff who work for ABC Homes.

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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