

# OCR

Oxford Cambridge and RSA

**Tuesday 23 June 2015 – Morning**

**A2 GCE**

**APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY**

**G055/01/IC** Networking solutions

**INSERT**

**Duration:** 1 hour 30 minutes



#### **INFORMATION FOR CANDIDATES**

- This document consists of **8** pages.

#### **INSTRUCTION TO EXAMS OFFICER/INVIGILATOR**

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The work you submit for these pre-release tasks **must** be your own.

- If you copy from someone else or allow another candidate to copy from you, or if you cheat in any other way, you may be **disqualified** from at least the subject concerned.
  - You **must** always keep your work secure and confidential whilst you are preparing it. **If it is stored on a computer network, keep your password secure. When printing work, collect all copies from the printer and destroy the copies you don't need.**
  - Any materials (e.g. books, information from the Internet you have used to help complete this work, etc.) **must** be clearly acknowledged in the work itself.
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- All work **must** be submitted to your teacher once completed. Ensure you include your name, candidate number and centre number on all pages and that each page is hole punched in the top left-hand corner and secured with a treasury tag.
  - **You must not submit any materials other than your response to the pre-release tasks.**
  - When you hand in your completed tasks, you will be required to sign that you have understood and followed the regulations by completing a Candidate Authentication Statement.
  - Your work will be returned to you at the start of the exam, in the exam room. At the end of the exam, you **must** attach **all** tasks to your question paper using the treasury tag.

**ALWAYS REMEMBER**

**YOUR WORK MUST BE YOUR OWN**

## PRE-RELEASE TASKS – INSTRUCTIONS FOR CANDIDATES

Read the attached case study and these instructions carefully, then carry out the tasks detailed below. There are two types of task.

In Task 1 you will produce notes that will help you to answer questions in the examination for this unit. The other tasks will be marked and will contribute up to 30 of the 100 marks available for this unit.

You will need your completed tasks when you take the examination for this unit.

The work produced in response to the pre-release tasks **must** be submitted to your teacher when it is completed. The work **must** be presented as a hard copy.

It is not acceptable for you to copy large parts of material from other sources as the tasks require you to apply your knowledge to the case study. Any books, information leaflets or other materials (e.g. videos, software packages or information from the Internet) which you have used to help you complete this work **must** be clearly acknowledged in the work itself. To present material copied from books or other sources without acknowledgement will be regarded as deliberate deception.

You **must not** submit any material other than your response to the pre-release tasks.

The work **must** be collated so that it is presented in task order.

Each page of the work **must** be marked clearly with your name, candidate number, centre number and task number.

When you have completed the tasks you **must** sign and date a Candidate Authentication Statement. You **must** then ask your teacher to sign to confirm that the work is your own.

### Task 1

Mr Rathlin would like to discuss the new network to explore how it will affect his business, what options he has in terms of how the network is designed and the issues that he needs to be aware of in connection with using the network. To prepare for this discussion you will need to carry out your own research and make notes on:

- benefits that a client-server network will bring to the business
- potential problems associated with the new network
- the function of a VPN within this network
- the different network topologies that could be implemented, the benefits and limitations of each
- the legal and security issues associated with dealing with commercial transactions and confidential data files and how these might be dealt with
- the suitability of the potential connection devices and equipment required for the wireless local area network (WLAN) connected to the main network
- types of broadband connection and the equipment needed to make the connection.

**Task 2**

The main network will be a local **client-server** network, following a **star** topology. One spoke of the star will lead to the Internet connection to the ISP. You have been asked to create a physical design for the network showing all connection devices, the types of cable and connector, wireless connections and other network equipment. All components in your design **must** be clearly labelled. You **must** add your network design to the diagram supplied in **Appendix 1**. [18]

Briefly evaluate the method(s) you used to carry out this task. [3]

**Task 3**

Mr Rathlin has asked you to prepare a report in which you explain the tasks required for setting up an Internet connection between the office network and the ISP to allow for web browsing and file transfer. He will need to know why each task is necessary.

The work you produce for Task 3 **must not** exceed 250 words and you **must** include a word count.

Marks will be awarded for the quality of written communication in your answer. [9]

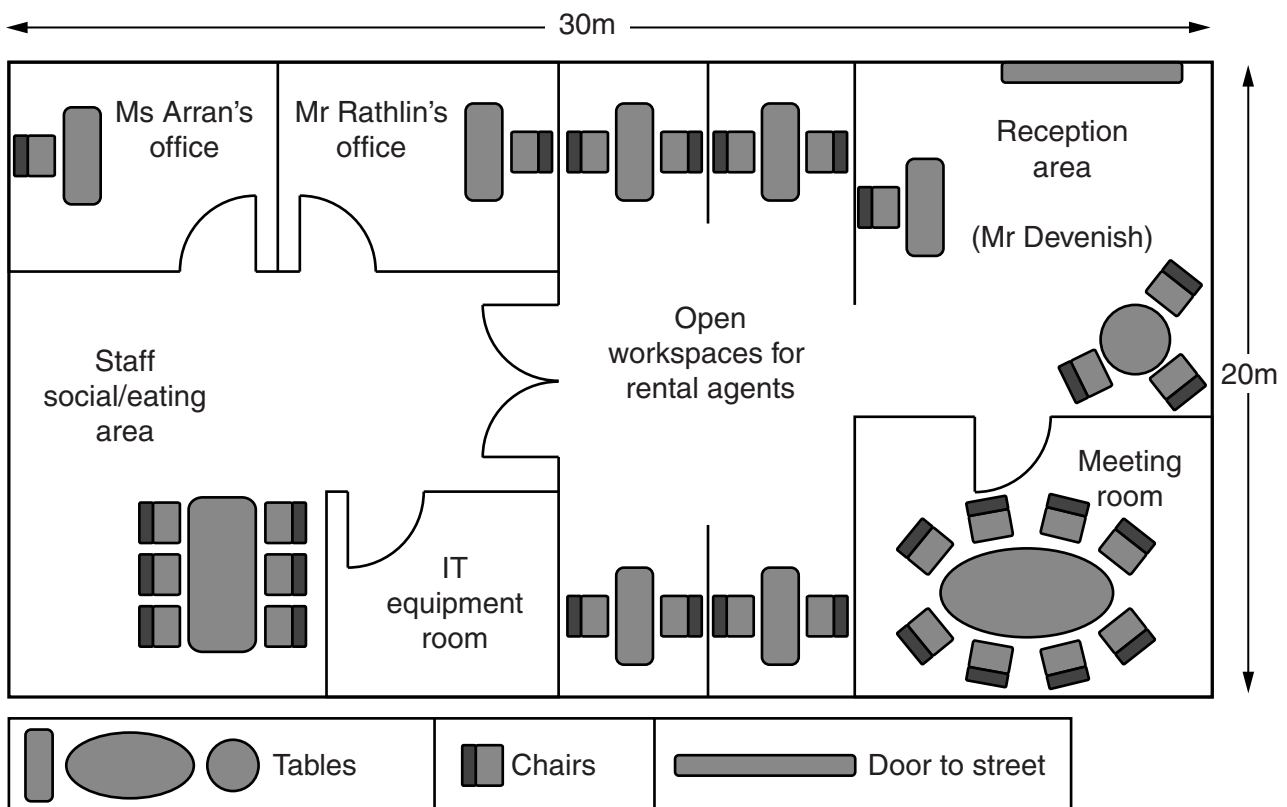
## CASE STUDY

### Ocean Rentals Agency (ORA)

ORA is a small business dealing with the rental of apartments in a large city to national and international clients. A large proportion of ORA business is conducted by telephone or online. The business has recently expanded and has now outgrown its current office and computer systems. Mr Rathlin, the Chief Executive Officer of the business, has approached you for advice on installing new computer systems. He requires them to improve the efficiency of the business' communication and information management.

ORA will move into a new office in the next few months and will need the IT infrastructure and equipment to be in place by then. **Fig. 1** shows the layout of the new office.

The new office will have a reception area where the Office Manager, Mr Devenish, will deal with clients who walk in. There will be an office each for Mr Rathlin and Ms Arran, the Accounts Manager. The business employs up to eight rental agents. Four open workspaces will be set up for use by the rental agents when they are dealing with clients in the office. Workspace will not be allocated to any particular agent and all agents will have laptops or tablets which will connect to the office network when appropriate. A meeting room will be used for face-to-face meetings and telephone conference meetings between agents and clients. The new office will have a staff social/eating area and space in the general reception area for informal discussions with clients. An IT equipment room will have its own air conditioning system and lockable door. The main telephone point will be situated in this room. ORA aims for a paperless office. However, Mr Devenish sometimes prints details for clients and will have the company's only printer attached to his computer.



**Fig. 1**

There must be at least one cabled network connection point in each of Mr Rathlin's and Ms Arran's offices, in the reception area and in the meeting room.

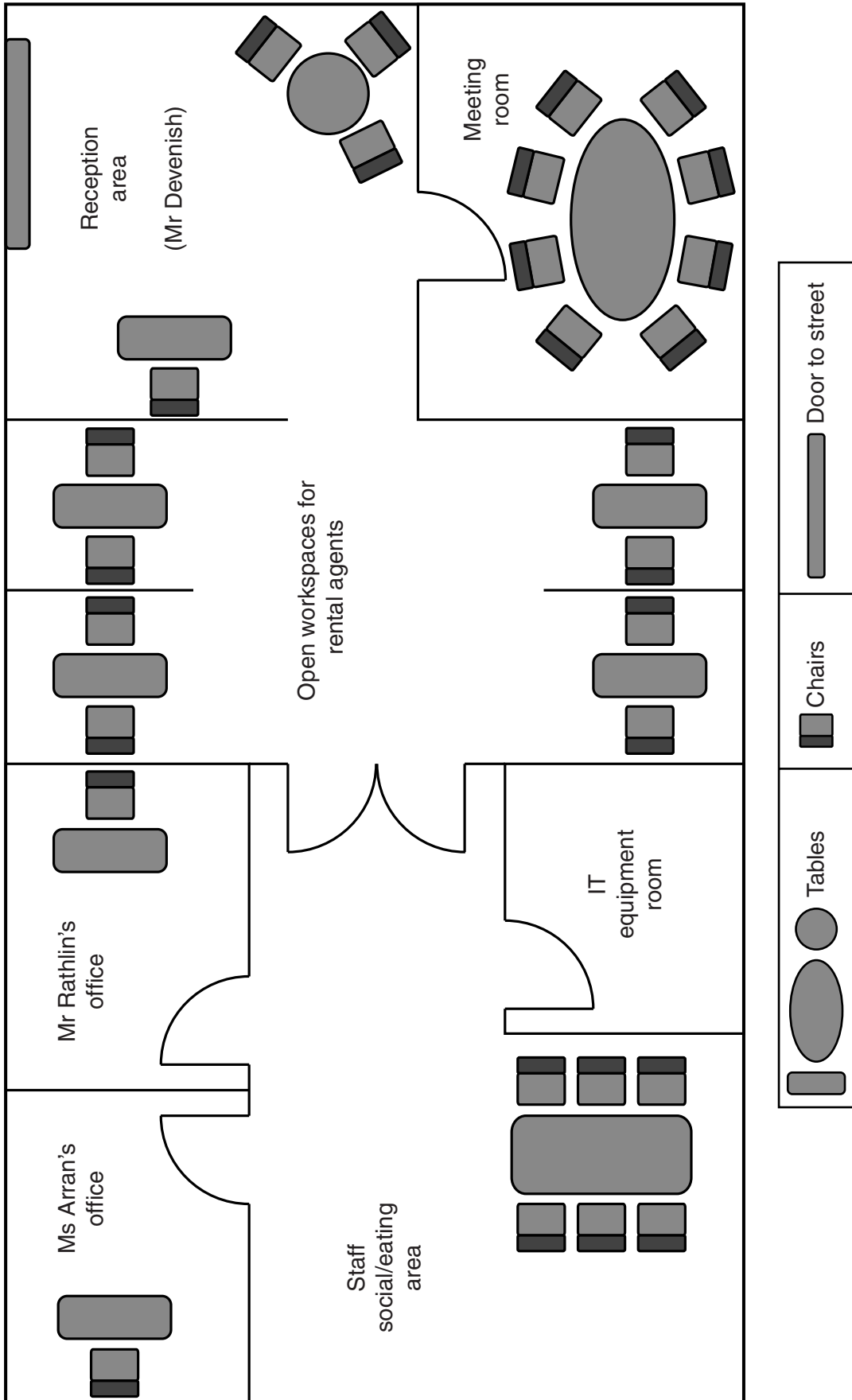
ORA conducts a large amount of its business online, including keeping in touch with clients by email. The company will need a high speed connection to its ISP. Mr Rathlin would like to use IP telephony in order to keep telephone costs down. The business holds a large database of clients in which it stores details including rental payments, deposit information and personal details of rental clients and landlords.

Rental agents will often show clients around apartments and will deal with potential landlords. Each agent will want to be able to enter information remotely into the database as soon as it is obtained. It will also be necessary for agents to keep in contact with the office by email. Occasionally, an agent may need to consult with Mr Rathlin at the office when valuing an apartment. A video conference will be held between the agent and Mr Rathlin on these occasions. This will enable Mr Rathlin to view the apartment remotely and decide on an appropriate valuation. Additionally, clients will sign contracts electronically at their homes and these will be sent immediately to the office. Rental agents will need to be able to access documents and data securely from both inside and outside the office using VPN technology.

Mr Rathlin hopes that the company will continue to expand, so there may be a need to provide more network connections in the office in the future.

For now, you are required to advise on the most effective ways to connect the network in the office; to connect the network to the ISP and to implement the services, including VPN, that should be available on the new network.

Appendix 1





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