

# OCR

Oxford Cambridge and RSA

**Friday 16 June 2017 – 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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### NOTICE TO CANDIDATES

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 while 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

Technicians will sometimes recommend systems to customers and will install and maintain their equipment. Customers will want to know why systems are being recommended.

Do some research and make some guidance notes to help technicians to build technical networking knowledge and to be able to justify the recommendations they might make to their charity customers. Your notes should cover the following:

- the benefits of computer networks over the use of stand-alone computers for a charity
- the disadvantages of computer networks for a charity
- Wireless Local Area Networks (WLAN) and why this might be recommended
- wired LAN technologies suitable for a charity's network
- network topologies and their suitability for the OCRS network
- methods for connecting a charity's LAN to the internet, the equipment and set up processes required
- the function of components and protocols that will make connections between the OCRS LAN and the internet to facilitate web hosting
- the use of communication and problem logs to assist in the maintenance of the OCRS network.

**TASK 2**

OCRS needs to re-design its network to include the new hardware and software components. New components include:

- a server for web hosting
- security components
- an intranet hosted within the network
- wireless connectivity

Some changes to existing components may be needed.

Produce a diagram to show the new physical layout of the network after the components have been added/replaced.

Choose **four** of the components you have either added to the network, or you have replaced in the network. Complete Table 1 below with a reason for adding or replacing each component.

Component	Why component is needed in new network

**Table 1**

**TASK 3**

OCRS will be providing web hosting for its customers. Customers will edit and upload content to their own websites. Some customers will use a web-based Content Management System (CMS) and some will manage their own sites. All customers need to be able access their websites on the hosting service provided by OCRS. Help desk technicians will need to explain to customers the hardware and software they will need to access their websites and why they will need it.

Write a short guide for the technicians that identifies the hardware and software customers will need to enable them to edit and upload their websites and explains the reasons why the hardware and software is needed.

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

The quality of your written communication will be assessed through this task.

## CASE STUDY

Optimum Computer Rescue Services (OCRS) is a small company located in the north of England. OCRS provides technical support to charities and not-for-profit organisations. The company will help fix problems with computers, networks and internet connections. Support services include:

- telephone support for users
- remote support
- on-site visits for hardware problems and training
- technical advice on equipment and services.

The charities that use the services of OCRS are small organisations with limited funds. They often use borrowed office space, which limits what they can install. All costs must be kept to a minimum but OCRS aims to provide and support the most efficient systems possible. Charities are often run by volunteers who may work only one or two days a week. Communication and access to information is very important so that everyone knows what is going on.

Some of OCRS' customers have internet access and some don't.

Customers with internet access will contact OCRS by telephone or by emailing support@ocrs.org.uk. A help desk technician will contact the customer by telephone or email to give initial guidance. The technician will then try to solve the problem by asking the customer to try some solutions. If this doesn't solve the problem, the technician will access the computer remotely by using previously installed software. If remote access doesn't solve the problem then a field engineer will be booked to visit the customer.

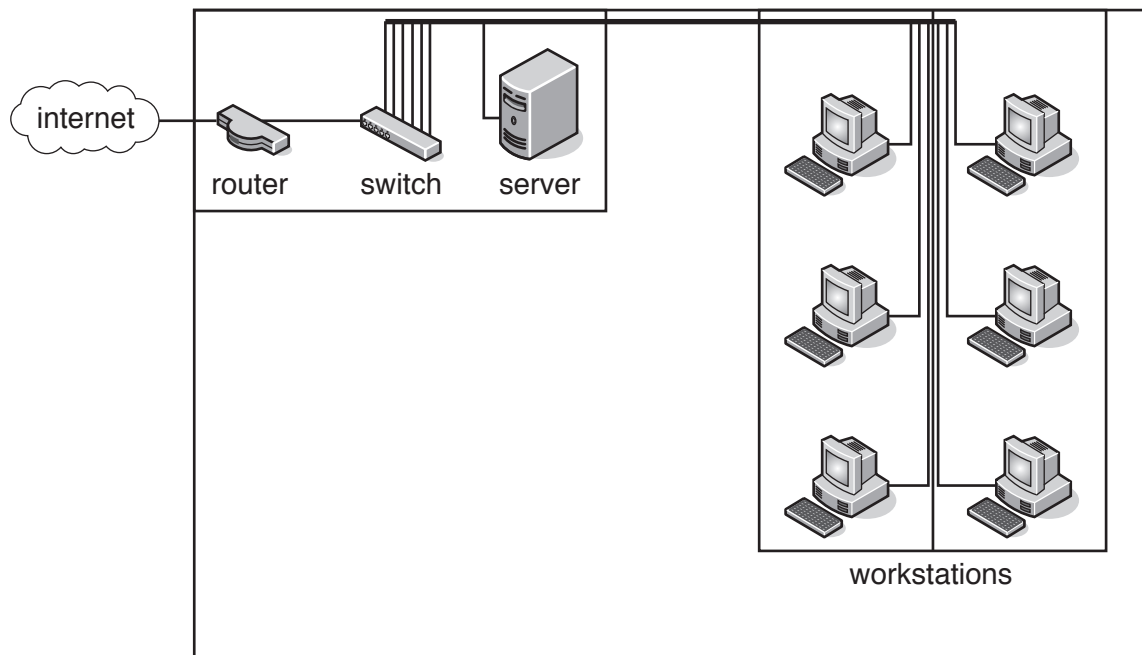
Customers without internet access will contact OCRS by telephone. A help desk technician will receive the call and will talk through the problems with the customer. The technician will then try to solve the problem by asking the customer to try some solutions. If this doesn't solve the problem, the technician will book an appointment for a field engineer to visit the customer.

### Network configuration

OCRS has a small office in a shared building and has six members of staff. OCRS has a wired network. The network is connected with:

- Cat 6 cabling
- 8 port Gigabit Ethernet switch,
- 4 port Gigabit ADSL router.

The current network is configured as a star. Fig. 1 shows the current physical network layout.

**Fig. 1**

OCRS has recently reviewed its services. The following additions are now planned:

- OCRS will start to host websites and email for its customers. Existing ISP connections are fast enough to cope with expected traffic load. A new server will be needed to provide the hosting. OCRS will work in partnership with a web development company that will design and publish its customers' websites. The new websites will be hosted by OCRS.
- OCRS will need to ensure that all its servers are fully secure once it is hosting websites.
- OCRS will implement an intranet that will be used to host a web-based support ticket system. A support ticket will be opened for each problem supported by OCRS. The system would allow help desk technicians to record a problem log for each support ticket they deal with. Access to ticket information would be enabled for help desk technicians and field engineers.
- OCRS will introduce wireless connectivity to their network. Any employee or visitor using a laptop in the office will be able to connect to the wireless network. When customers' laptops are being repaired or set-up, the wireless network will be used for testing and configuration.

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