

ADVANCED GCE

**APPLIED INFORMATION AND COMMUNICATION
TECHNOLOGY**

G055/IC

Unit 16: Networking Solutions

INSTRUCTIONS FOR CANDIDATES

Pre-release Material and Tasks

JANUARY 2009

To be opened on receipt



INFORMATION FOR CANDIDATES

- This document consists of **8** pages. Any blank pages are indicated.

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 material (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, 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

The Sports Injury Clinic (SIC) will need some advice on setting up and using its network.

Carry out your own research and make notes, that can be used in discussion with SIC, about the planning of its new network. Your notes should include:

- the benefits of networking to SIC and the specialists, including intranet and extranet provision and virtual networks
- the types of network available (including LAN, WAN, WLAN, VLAN, VPN), the characteristics of each and the purpose and function of the hardware and software required for each
- the possible topologies SIC could use, diagrams for each of the main topologies, useful features and vulnerabilities to hardware failure
- the internet services available to SIC and the specialists, and the hardware and software required for these
- the information SIC will need to record when setting up its internet connection and the methods it might use to publish internal and external web pages
- the health and safety risks involved in installing and using a network at SIC
- the risks to security involved in storing SIC's data on the network.

TASK 2

Before installing the network at the Sports Injury Clinic (SIC), it is important to have a good design that everyone can understand. This design will include where computers, cabling, connecting equipment and other hardware will be placed. It will also include a checklist of all hardware and software that needs to be purchased and installed.

The diagram in Fig. 1 shows the layout of the two buildings. Use the diagram to show how the network would be physically connected, what equipment and how many computers will be situated on each floor. **[6]**

List all the hardware and software components to be installed and, for each, explain why and where it is needed. This list must include:

- cables and connectors
- connecting equipment
- any other additional hardware
- any additional network software. **[12]**

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

TASK 3

The Sports Injury Clinic (SIC) has been advised that it needs a client-server network.

Write a report for the directors explaining the factors that affected this choice of network.

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

The quality of your written communication will be assessed through this task. **[9]**

CASE STUDY

The Sports Injury Clinic (SIC) has a private treatment centre where athletes can register for single or regular courses of treatment. The centre has two buildings on one large site. A two-storey office building houses the administration, data processing and finance staff and the offices of the two company directors. The other building, the treatment centre, has four storeys, a central lift shaft and a staircase. It has four treatment rooms on each of the top three floors. On the ground floor it has four consultation rooms and a reception area where all information processing takes place.

When patients come for treatment, they arrive at reception and are booked in. They either see a practitioner in the consultation room or go straight for treatment. Their personal and health information is recorded on paper by staff and sent to the data processing department. If necessary, patients see reception staff before they leave to book their next appointment. This information is also sent to the data processing department, which keeps the appointment database and patient record database up to date. Patients who require specialist treatment are seen on the second and third floors by a group of independent specialists. These specialists charge the clinic a reduced fee per patient in return for the use of the clinic's administration systems.

The centre urgently needs a computer network to allow it to have better access to up to date information in all its offices and treatment rooms.

In the office building, the centre already has a secure room in which it keeps most of its computing equipment. It currently has a number of stand-alone computers in this room and in the offices.

The requirement now is to have:

- one computer in each treatment room
- one computer in each consultation room
- two computers in reception
- a total of twelve computers throughout the office building.

All computers must be linked to the new network. There must be a link from the network to the internet and a wireless network must be incorporated for the independent specialists. This wireless network, while connected to the main network, must be virtually separate from it and must have its own server.

SIC Office Building and Treatment Centre

(not to scale)

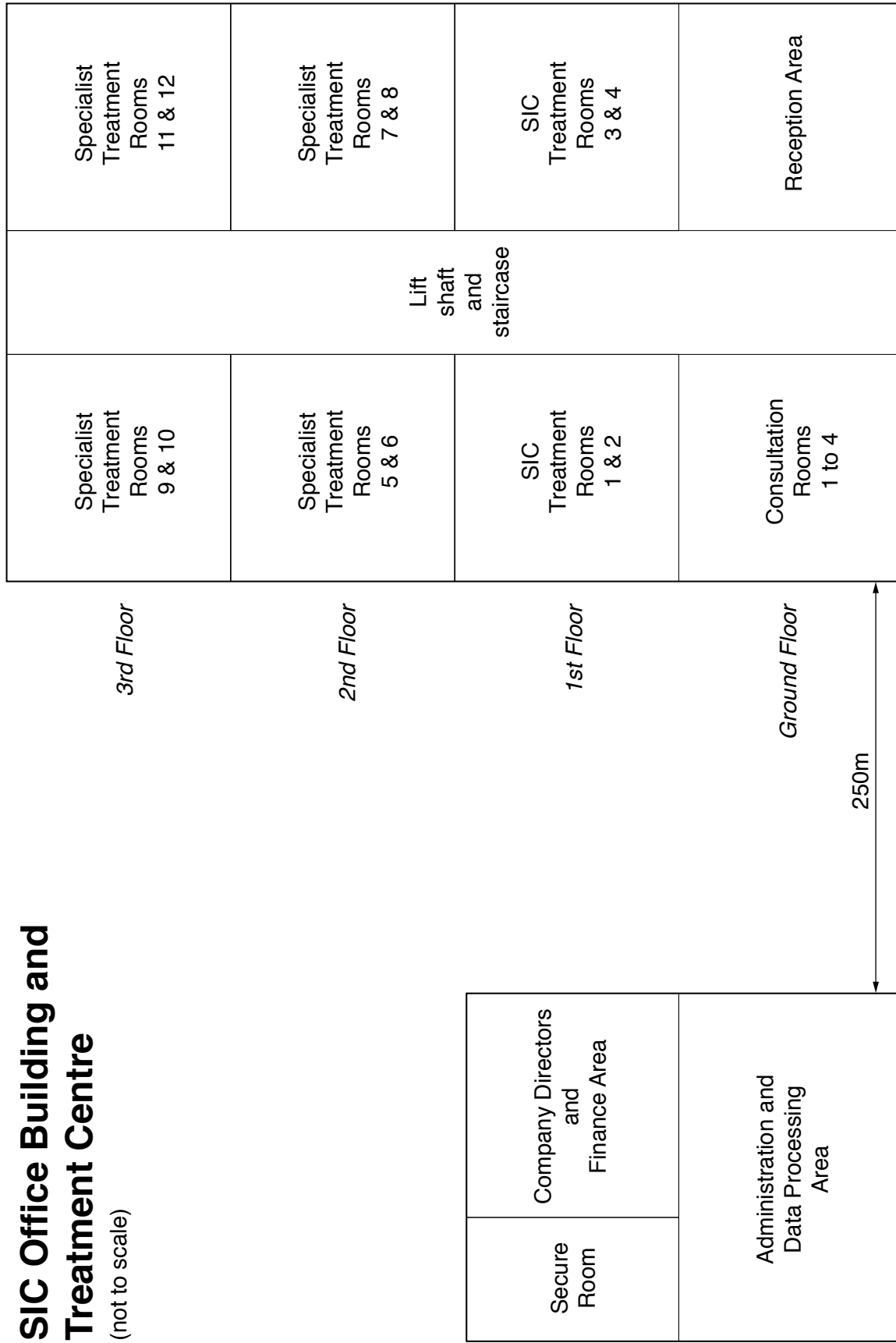


Fig. 1



Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (OCR) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

OCR is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.