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A2 GCE
APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

G055/01/IC Networking Solutions

INSTRUCTIONS FOR CANDIDATES

JUNE 2013

PRE-RELEASE MATERIAL AND TASKS

G030660613

INFORMATION FOR CANDIDATES

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

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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 whilst you are preparing it. **If it is stored on the computer network, keep your password secure. When printing work, collect all copies from the printer and destroy those you don't need.**
- Any materials (eg books, information from the internet you have used to help complete this work) must be clearly acknowledged in the work itself.

- 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.
- **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.
- 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 a treasury tag.

ALWAYS REMEMBER

YOUR WORK MUST BE YOUR OWN

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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 (eg 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

Mrs Baleen, Managing Director of Orca Graphic Designs Ltd (OGD) needs a new network system and will need advice on the type of network to install and the way it might be used.

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

- advantages and disadvantages to OGD of having a network for data sharing and communication
- the possible use of peer-to-peer and client-server networks at OGD and the function of various servers within a client-server network
- the possible topologies that could be used and the advantages of each topology
- the types of transmission media that could be used and the features of each
- the types of software required for a network with internet access and the services this access would provide
- possible methods for sharing hardware such as printers, file storage and internet connections, and the benefits and limitations of sharing these resources
- health, safety and data security issues to be considered by OGD when designing its network.

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Task 2

The layout of the network needs to be planned. You are due to meet with Mrs Baleen and will take a network diagram with you to discuss with her.

Produce a diagram (using Fig. 1, Fig. 2 and Fig. 3) showing how the whole network would be **physically** connected together.

Your diagram must be fully labelled to show:

- all computers
- network storage devices
- printers
- internet connection
- connection media
- connection devices.

Your diagram must have a key that identifies each type of equipment and transmission media. For each type state why you have chosen to place it where you have in the OGD network. **[18]**

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

Task 3

The strategic IT review recommended that the new network system includes central data storage, accessible to all company employees only, and that the company internet connection be shared by everyone, including Freelance Designers. Mrs Baleen wants to know how this can be achieved.

Write a memo to Mrs Baleen explaining how VLAN technology can be used to implement this recommendation.

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]**

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CASE STUDY

Orca Graphic Designs Ltd (OGD) is a small design company which creates original artwork for organisations worldwide. The company has its offices in an old farmhouse and in two converted barns on one site in a rural area of South Wales.

The company maintains a website showcasing its work. They use an ISP based in the nearby city of Cardiff to host the website and provide a broadband connection to the internet. Customers make initial contact with OGD through the company's website which is updated weekly by the Information Officer.

The Information Officer, Mr Cachalot, has the only connection to the internet and has a DVD writer and hi-resolution monitor. He is responsible for maintaining a library of the artwork produced by the company. The library is stored on a large number of DVDs.

OGD employs eight Graphic Designers. Each Graphic Designer has a dedicated high specification computer with dual hi-resolution monitors. There is no internet access for these computers but each has wireless capability, so that the Graphic Designers can access a local colour printer through a wireless access point connected to a print server. When a Graphic Designer requires access to artwork stored in the library, this must be requested from Mr Cachalot, who will provide the relevant DVD.

The company's Managing Director, Mrs Baleen, and its Administrator, Mrs Beluga, each have a standard desktop computer on which each carries out a variety of administrative and managerial tasks. These computers are not connected to the internet.

Six of the company's eight Graphic Designers work in one of the barns. All other employees work in the old farmhouse offices. The second barn is not currently being used by the company.

Communication between employees is currently done by memo, daily meetings and notice boards.

The company proposes to use the second barn for rental to Freelance Designers (Graphics or Website). There will be four available rental spaces in this barn, each of which will be provided with a workstation area with power, a telephone connection, internet access and use of a colour printer.

A strategic IT review has recently been completed. This recommended that a completely new network system be installed at the company's site. This will include central data storage, accessible to all company employees only, and for the company internet connection to be shared by everyone at the site, including the Freelance Designers. As some OGD Graphic Designers would like to work from home remote connection to the network will be necessary.

Fig. 1 shows the layout of the buildings used by the company on its site.

Mrs Baleen wants you to design a network that will allow all OGD employees to have access to the extensive library of artwork in a centralised storage area. This should be accessible by employees from anywhere onsite or remotely. The network must have high bandwidth broadband access to the ISP in Cardiff in order for all users to access email and the worldwide web, and for Mr Cachalot to continue the regular updates to the company website. There must be one colour printer in each of the barns, in Mr Cachalot's office, and in each ground floor room in the old farmhouse.

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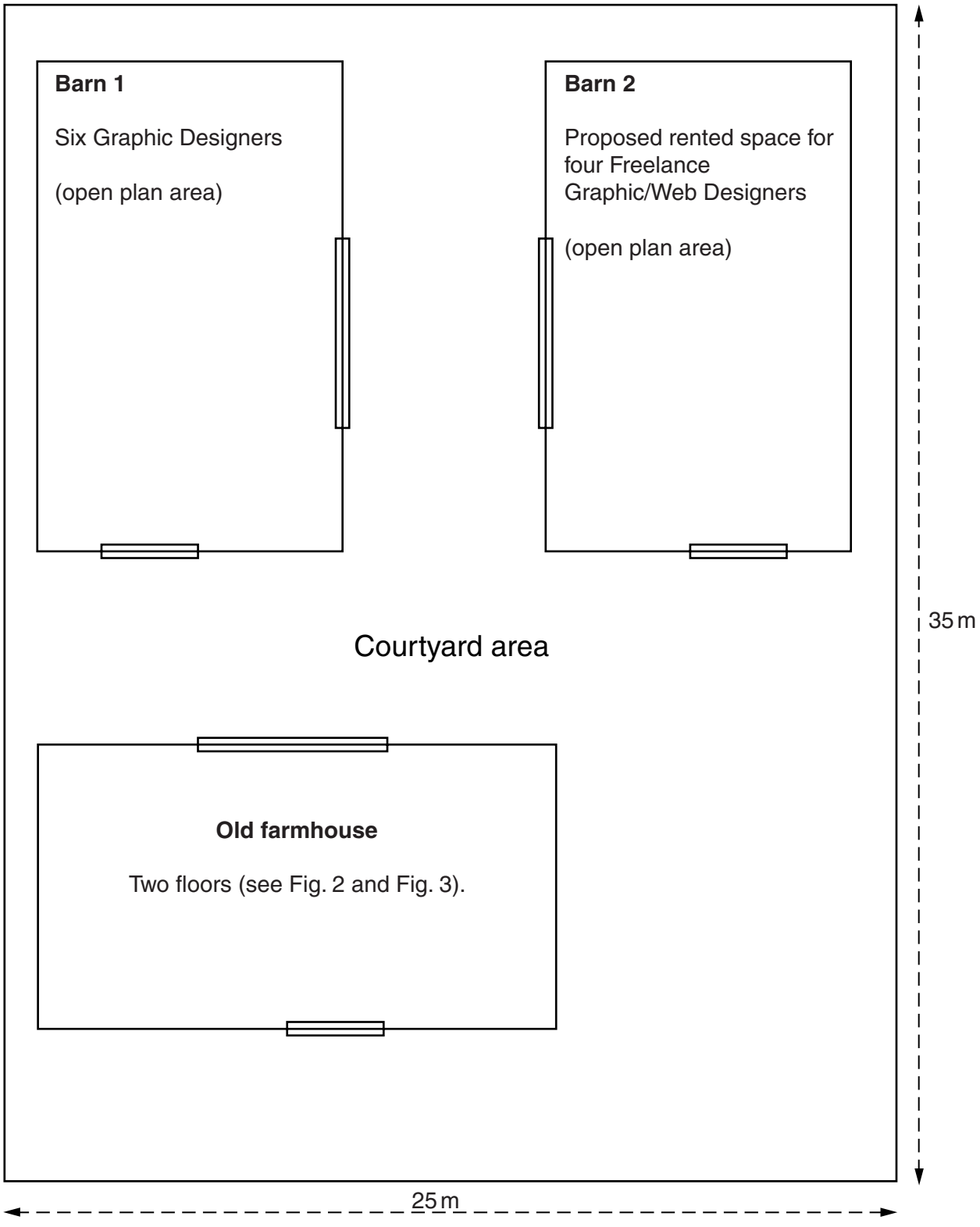

Fig. 1

Key: Door/Fire door

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Old farmhouse ground floor layout

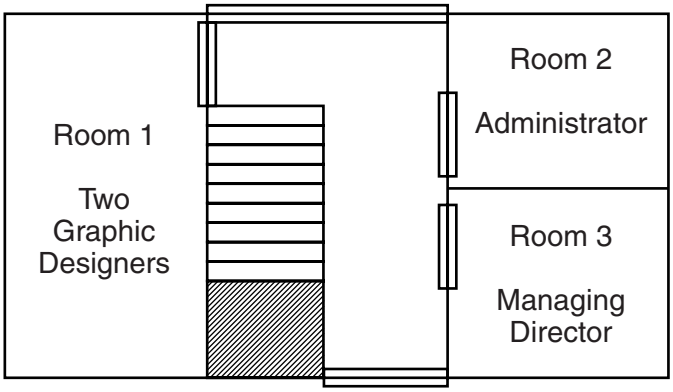

Fig. 2

Old farmhouse first floor layout

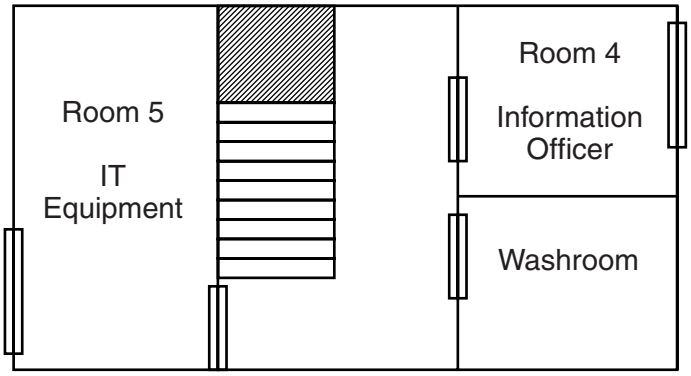

Fig. 3

Key: Door/Fire door

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