

**ADVANCED GCE
APPLIED INFORMATION AND COMMUNICATION
TECHNOLOGY**

G055

Networking Solutions

Candidates answer on the Question Paper

OCR Supplied Materials:

- Instructions for Candidates G055/IC (inserted)

Other Materials Required:

- Candidate's pre-prepared materials

**Wednesday 27 January 2010
Afternoon**

Duration: 1 hour 30 minutes



| | | | |
|--------------------|--|-------------------|--|
| Candidate Forename | | Candidate Surname | |
|--------------------|--|-------------------|--|

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|---------------|--|--|--|--|--|------------------|--|--|--|--|
| Centre Number | | | | | | Candidate Number | | | | |
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INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.
- Attach your pre-prepared materials for tasks 1–3.

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 **100**.
- No marks will be awarded for using brand names of software packages or hardware.
- This document consists of **12** pages. Any blank pages are indicated.

| Examiner's Use Only: | | | |
|----------------------|--|----|--|
| 1 | | 9 | |
| 2 | | 10 | |
| 3 | | 11 | |
| 4 | | 12 | |
| 5 | | 13 | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| Total | | | |

Section A

This section relates to the case study and tasks on the Centre for New Ideas (the Centre) and Nanodot Web Services Ltd (NWS).

1 NWS will set up its own network within two offices at the Centre. There will be benefits and disadvantages to NWS of having its own network.

(a) Describe **one** benefit.

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..... [2]

(b) Describe **one** disadvantage

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..... [2]

- 2 A small business setting up its own network within the Centre will need to choose an appropriate form of transmission media and matching connector or connecting equipment.

For each of the following types of transmission media, identify the appropriate connector or connecting equipment and explain why that particular type of media would be suitable for a small office network.

| Transmission Media | Connector/ connecting equipment | Why suitable |
|-------------------------------|---------------------------------------|--------------|
| Unshielded Twisted Pair cable | | |
| Wireless | | |

[6]

3 A number of hardware devices will be needed by NWS for its network.

Describe the function of each of the following devices within NWS.

File server

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Network printer

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Switch

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..... [6]

4 Security will be an important issue to the businesses that rent office space at the Centre.

Explain how each of the following types of software will be used to help to provide security on the Centre's network.

Anti-virus software

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Firewall software

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[6]

5 The Centre's main network might be set up following a star topology.

(a) Draw and label a diagram showing a star topology.

[4]

(b) Describe how a small business network would send data to the Centre's data storage device following a star topology.

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[2]

(c) Evaluate a star topology as the basis for the Centre's main network.

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[3]

6 NWS could choose to set up a peer-to-peer network or a client-server network.

(a) Explain how a client-server network could be used by NWS.

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..... [3]

(b) Evaluate the use of a client-server network by NWS.

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..... [3]

7 At the Centre, all users will be sharing a broadband connection.

(a) Explain how it is possible for all the small businesses to share the broadband connection.

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..... [2]

(b) Describe what users at NWS will notice when a large number of other businesses share the broadband connection at the same time.

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..... [2]

(c) How long will it take to download a 512Kb picture at a download speed of 8 Mbps?

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..... [2]

8 The Centre will be providing broadband access for all users. For this they will need to set up a connection to the internet.

Explain the different methods of making a broadband internet connection, including the equipment required to make the connection, how it works and its suitability for the Centre.

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Section B

You do not need the case study or your tasks to answer these questions.

- 9 Describe **two** aspects of workstation design and why each should be considered in relation to the health of users of ICT network systems.

Aspect 1

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Aspect 2

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..... [4]

- 10 Networks require the use of protocols to ensure that communication takes place correctly. Identify and describe a protocol used by browsers for requesting and receiving web pages.

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..... [3]

11 A VPN is a Virtual Private Network.

(a) Explain the function of a VPN.

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..... [3]

(b) Describe a situation where the use of a VPN would be appropriate.

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..... [2]

12 The following is an extract from a communication log.

| Timestamp | Duration | File name | File Size | Source | Destination | Bytes transferred |
|---------------------|----------|-----------|-----------|----------------|---------------|-------------------|
| 09:12:2010:09:10:00 | 00:00:05 | Page1.php | 40 Kb | 192.80.125.203 | 168.124.30.02 | 0 |
| 09:12:2010:09:12:30 | 00:01:34 | Home.htm | 2.4 Mb | 192.80.125.145 | 168.124.30.13 | 3145728 |
| 09:12:2010:09:15:45 | 00:03:40 | Buy.htm | 5.8 Mb | 192.80.125.23 | 168.124.30.02 | 0 |
| 09:12:2010:09:22:56 | 00:00:55 | Prod.pdf | 800 Kb | 192.80.125.203 | 168.124.30.25 | 2726297 |
| 09:12:2010:09:25:33 | 00:02:23 | Shop.pdf | 4.3 Mb | 192.80.125.232 | 168.124.30.02 | 0 |

Explain a recurring problem shown by the log.

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..... [3]

13 A college would like to set up an extranet for its staff to use.

(a) What is an extranet?

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..... [2]

(b) Explain what members of staff might use the extranet for.

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..... [3]

END OF QUESTION PAPER



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