ADVANCED GCE

APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY
Networking Solutions

G055
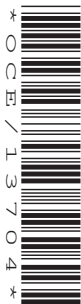
Candidate Forename		Candidate Surname	

Centre Number						Candidate Number					

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 **16** pages. Any blank pages are indicated.

For Examiner's Use		Max
Task 2		21
Task 3		9
1		4
2		6
3		6
4		6
5		9
6		6
7		6
8		7
9		4
10		3
11		5
12		3
13		5
Total		100

Turn over

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 be able to connect its own small network to the Centre's main network. There will be benefits and disadvantages to NWS in doing this.

(a) Describe **one** benefit.

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.... **[2]**

(b) Describe **one** disadvantage

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.... **[2]**

2 The Centre will need to connect network ports in each office to a main connecting device on its network. For this, an appropriate type of transmission media and matching connector will be required.

For each of the following types of transmission media, identify the appropriate connector and explain why that particular type of media would be suitable for the Centre's network.

Transmission Media	Connector	Why suitable
Fibre optic		
Shielded Twisted Pair		

[6]

Turn over

3 A number of hardware devices will be needed to enable all networks within the Centre to operate.

Describe the function of each of the following devices as part of the Centre's main network.

Wireless hub ....

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Modem ....

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Firewall ....

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.... **[6]**

4 A variety of software types will be required by the Centre's network.

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

Network operating system software ....

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Print server software ....

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.... **[6]**

Turn over

5 The Centre has considered setting up its main network using a mesh topology to connect the ICT rooms on each floor.

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

[4]

(b) Describe how a device in the ICT room on the first floor can send data to a device in the ICT room on the fourth floor, using this topology.

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.... **[2]**

(c) Evaluate this topology as the basis for connecting the ICT rooms.

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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 peer-to-peer network could be managed by NWS.

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.... **[3]**

(b) Evaluate the use of a peer-to-peer network by NWS.

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.... **[3]**

Turn over

7 At the Centre, all computers will need IP addresses.

(a) Give an example of an IP address.

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.... **[1]**

(b) Identify an appropriate class of IP address and state why it is appropriate for the Centre.

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.... **[2]**

(c) Convert the following binary IP address into its decimal equivalent.

11000010 01100000 01111101 10110110

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.... **[3]**

8 NWS will have broadband access to the internet. This will allow them to use a variety of internet services.

Analyse the services that will be available to allow NWS to communicate with its clients over the internet, explaining the purpose of each and how each could be used by NWS.

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.... **[7]**

Section B

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

9   Describe **two** safety considerations when installing a network.

Consideration 1 ....

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Consideration 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 between mail servers for sending and receiving emails.

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.... **[3]**

11 A VLAN is a Virtual Local Area Network.

(a) Identify the main piece of equipment required to set up a VLAN and describe its function.

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.... **[3]**

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

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.... **[2]**

12 The following is an extract from a directory listing for a directory in which problem logs are stored. Files are named using the problem type, location and date.

> /problem logs/2011/hardware_admin_May_11.txt
> /problem logs/2011/hardware_sales_May_12.txt
> /problem logs/2011/software_finance_May_21.txt
> /problem logs/2011/user_admin_May_22.txt
> /problem logs/2011/software_admin_May_23.txt
> /problem logs/2011/hardware_finance_May_23.txt
> /problem logs/2011/user_admin_May_24.txt
> /problem logs/2011/user_admin_May_25.txt
> /problem logs/2011/software_sales_May_25.txt

(a) Identify a recurring problem shown by the log.

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.... **[1]**

(b) Explain how access rights will be used to protect the problem logs directory.

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.... **[2]**

13 A college would like to set up an intranet for its staff and students to use.

(a) What is an intranet?

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.... **[2]**

(b) Explain what members of staff might use an intranet for.

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.... **[3]**

END OF QUESTION PAPER

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