

ADVANCED GCE UNIT

G055

APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

Unit 16: Networking Solutions

WEDNESDAY 24 JANUARY 2007

Morning

Time: 1 hour 30 minutes

Additional materials:
Pre-release material and tasks with candidate instructions
Candidates pre-prepared materials



Candidate
Name

Centre
Number

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Candidate
Number

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INSTRUCTIONS TO CANDIDATES

- Write your name, Centre number and Candidate number in the boxes above.
- Answer **all** the questions.
- Use blue or black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- Do **not** write in the bar code.
- Do **not** write outside the box bordering each page.
- WRITE YOUR ANSWER TO EACH QUESTION IN THE SPACE PROVIDED. ANSWERS WRITTEN ELSEWHERE WILL NOT BE MARKED.

INFORMATION FOR CANDIDATES

- The number of marks for each question 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.

Question number	For Examiner's Use Only	Max
Task 2		21
Task 3		9
1		3
2		4
3		2
4		13
5		4
6		8
7		4
8		8
9		4
10		6
11		2
12		4
13		2
14		6
TOTAL		100

This document consists of **11** printed pages, **1** blank page and an insert.

PLEASE DO NOT WRITE ON THIS PAGE

Section A

This section relates to the case study and tasks on Rolling Rocks.

1 Identify **three** costs to Rolling Rocks of installing a network.

Cost 1

.....

Cost 2

.....

Cost 3

..... [3]

2 Describe **two** advantages to Rolling Rocks of networking the computers.

Advantage 1

.....

.....

.....

Advantage 2

.....

.....

..... [4]

3 Rolling Rocks can choose to install a peer-to-peer network or a client-server network.

Give **two** reasons why Rolling Rocks might consider a peer-to-peer network.

Reason 1

.....

Reason 2

..... [2]

- 4 Two of the network topologies available to Rolling Rocks are ring and mesh. Fig. 1 shows a diagram of the logical layout for a ring topology.

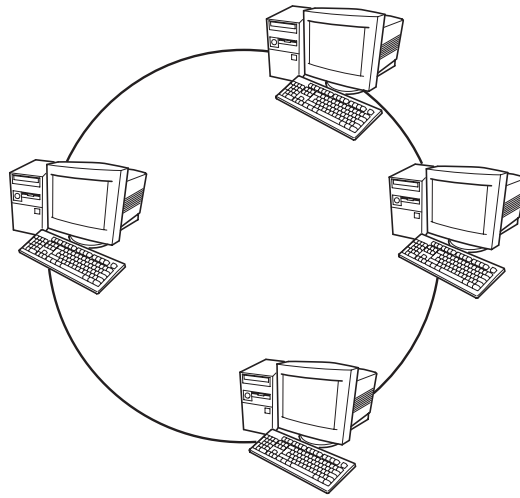


Fig. 1

- (a) Give **three** features of a ring topology.

Feature 1

.....

Feature 2

.....

Feature 3

..... [3]

- (b) (i) Draw a diagram to show a mesh topology.

(ii) Give **three** features of a mesh topology.

Feature 1

.....

Feature 2

.....

Feature 3

.....

[3]

(c) Evaluate the use of a mesh topology for the Rolling Rocks network.

.....

.....

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.....

[6]

5 The network might be connected using unshielded twisted pair (UTP) cable.

(a) Identify a connector that would be used with this cable.

..... [1]

(b) Identify **one** characteristic of UTP cable.

.....
..... [1]

(c) Explain why this type of cable and connector would be suitable for the network at Rolling Rocks.

.....
.....
.....
..... [2]

6 The network at Rolling Rocks will need some new hardware.

Describe the function of each of the following types of hardware.

(a) bridge
.....
.....
..... [2]

(b) router
.....
.....
..... [2]

(c) firewall
.....
.....
..... [2]

(d) proxy server.
.....
.....
..... [2]

7 Rolling Rocks might choose to use the TCP/IP protocol throughout their network.

(a) Describe the TCP/IP protocol.

.....
.....
.....
..... [2]

(b) Explain why this protocol might be chosen.

.....
.....
.....
..... [2]

8 The Managing Director understands that there could be a higher risk of company computers being infected by a virus once a network has been installed and connected to the Internet.

(a) What is a virus?

.....
..... [2]

(b) How can a virus enter the network?

.....
..... [2]

(c) Describe **two** ways that Rolling Rocks can protect itself against the threat of viruses.

Way 1

.....
.....
.....

Way 2

.....
.....
..... [4]

9 Rolling Rocks could set up an extranet using their network.

(a) Describe the benefits of using an extranet.

.....
.....
.....
..... [2]

(b) Identify the software and hardware required for an employee to use an extranet.

Software
.....
Hardware
..... [2]

Section B

You do not need the case study or your tasks to answer these questions. Answer these questions on the lines provided.

10 A network is required in a very old building. A wireless local area network (WLAN) seems the most effective solution.

(a) Describe **one** advantage of installing a WLAN.

.....
.....
.....
..... [2]

(b) Describe **one** disadvantage of installing a WLAN.

.....
.....
.....
..... [2]

(c) Identify **two** items of hardware that would be needed to create a WLAN.

Item 1
.....
Item 2
..... [2]

11 When networks are designed, physical and logical topologies must be considered.

Describe **one** difference between a physical and a logical topology

.....
.....
.....
..... [2]

12 Describe **two** characteristics of Ethernet technology.

Characteristic 1

.....

.....

.....

.....

Characteristic 2

.....

.....

..... [4]

13 An IP header contains a checksum.

What is the purpose of a checksum?

.....

.....

.....

..... [2]

PLEASE TURN OVER FOR QUESTION 14

14 A communications log will contain details of the communication activities carried out on a network.

(a) Identify **four** items found in a communications log.

Item 1

.....

Item 2

.....

Item 3

.....

Item 4

..... [4]

(b) How could the communications log be used?

.....

.....

.....

..... [2]

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