![cea logo] **Rewarding Learning**

**ADVANCED**
**General Certificate of Education**
**January 2012**

# Applied Information and Communication Technology

## Assessment Unit A2 13

*assessing*

## Unit 13 : Networking and Communications

### [A6J71]

A6J71

**MONDAY 23 JANUARY, AFTERNOON**

---

**TIME**

1 hour 30 minutes.

**INSTRUCTIONS TO CANDIDATES**

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
Answer **all fourteen** questions on the paper in the spaces provided.
Quality of written communication will be assessed in **questions 3, 5 and 10**.

**INFORMATION FOR CANDIDATES**

The total mark for this paper is 100.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

**ADVICE TO CANDIDATES**

You are advised to take account of the marks for each part question in allocating the available examination time.

6522

| For Examiner's use only | | | |
|---|---|---|---|
| Question | Marks available | Marks | Remark |
| 1 | 5 | | |
| 2 | 12 | | |
| 3 | 12 | | |
| 4 | 4 | | |
| 5 | 12 | | |
| 6 | 4 | | |
| 7 | 6 | | |
| 8 | 6 | | |
| 9 | 4 | | |
| 10 | 12 | | |
| 11 | 6 | | |
| 12 | 10 | | |
| 13 | 4 | | |
| 14 | 3 | | |
| **Total** | **100** | | |

**1** Each of the computers connected together in a network must have a hardware network device installed that allows each computer to communicate **within** the network. Name this device and describe **two** of its properties.

Name of device: _____

Property 1: _____

_____

_____

_____

Property 2: _____

_____

_____

_____ [5]

**2** Each of the following statements about networks is either TRUE or FALSE. Place the word TRUE or FALSE correctly into the space opposite each statement about networks

| | |
|---|---|
| The cabling of bus topologies requires the use of fibre optics | |
| Within a bus network, each network card is allocated its own IP address by the manufacturer of the card | |
| Client server networks are useful when the network needs to be scaleable | |
| A token ring network uses a special timer to send the data around the ring | |
| A switch must always be used in token ring networks | |
| In a star network the most important part is the RJ 12 connection | |
| All network topologies cost the same | |
| Peer to peer systems are used in large networks | |
| Wireless networks are less secure than cabled networks | |
| Star networks need hubs or switches to function properly | |
| Terminators are used widely in bus networks | |
| A network operating system is needed in a client server network | |

[12]

**3** A small company is about to purchase 5 computers, a printer and some cable. The company wants advice about the best way to set up a small office network so that all computers can have access to the printer.

Describe, using labelled diagrams, **two** different ways in which this set up may be achieved.

DIAGRAM 1

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

DIAGRAM 2

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____ [12]

**5**

**[Turn over**

**4** Networks require network operating systems software in order to function as networks.

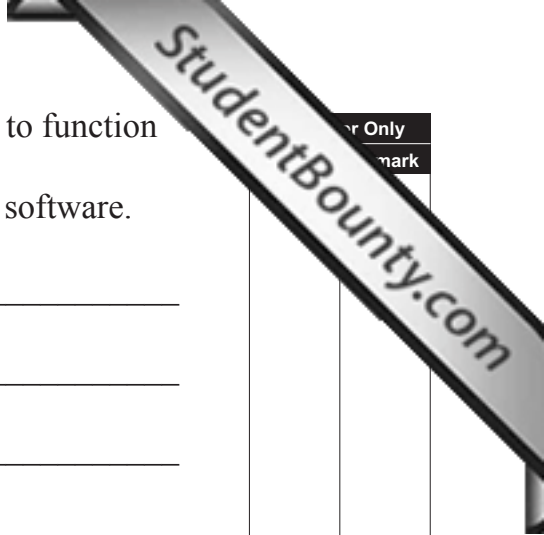Describe **two** properties of modern network operating systems software.

Property 1: _____

_____

_____

Property 2: _____

_____

_____ [4]

**5** A small company which has a client server network has considered it necessary to allocate different bandwidths to different users.

Explain what is meant by the term 'client server network' and describe the advantages that this architecture brings to the company. Describe **two** problems which may have occurred within the network to cause the company to allocate different bandwidths to different users.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____ [12]

**6** A large company uses a hybrid topology of which one part is a star topology and the other part is a bus topology. In the box below, tick (✓) the phrases which are associated with either bus or star topologies.

| | |
|---|---|
| Holds MAC addresses in the server | |
| Can change network card codes | |
| Passes a token | |
| Uses coaxial cabling | |
| Is part of the OSI model | |
| It needs a switch to function properly | |
| It uses a central hub | |
| It uses terminators | |
| It needs a printer to be installed | |

[4]

**7** Identify and describe **three** features of an Ethernet network system.

Feature 1: _____

_____

_____

_____

Feature 2: _____

_____

_____

_____

Feature 3: _____

_____

_____

_____ [6]

**9**

**8** Describe **three** benefits to a school of having a network of computers available for its students.

Benefit 1: _____

_____

_____

_____

Benefit 2: _____

_____

_____

_____

Benefit 3: _____

_____

_____

_____ [6]

**9** A family wants to use the Internet at home and is planning to have a router installed. In the box below, tick (✓) the characteristics which would normally be associated with a router.

| | |
|---|---|
| It allows **only** family members to log onto the home network | |
| It allocates IP addresses to computers in the home network | |
| It controls a proxy server | |
| It checks each family member's password when they log on | |
| It can split the family's single network into two logical separate networks | |
| It can show all the networks that exist in the neighbourhood | |
| It switches off when not being used | |
| It keeps information about other routers in 'routing tables' | |
| It broadcasts data in packets | |

[4]

**10** A small company has had a computer network installed and the person in charge of the network must explain issues regarding network security to the staff. She begins her talk to the employees by stating –

'To be effective, the network manager must be aware of the dangers posed by misuse of the system, attacks on the system and the physical dangers that might arise. They must also be aware of the solutions to these problems'.

Discuss this statement in relation to the design of good network security.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____ [12]

**11 (a)** Describe **two** main differences between static and dynamic (supplied) IP addressing.

Difference 1: _____

_____

_____

Difference 2: _____

_____

_____

_____ [4]

**(b)** Give **one** disadvantage of using static addressing rather than dynamic (supplied) addressing.

_____

_____

_____ [2]

**12 (a)** What is meant by an **access right**? Describe **two** access rights that a user in a computer network might be allocated.

An access right is _____

Access right 1 _____

_____

_____

Access right 2 _____

_____

_____ [5]

**(b)** What is meant by a **permission**? Describe **two** permissions that a user in a computer network might be given.

A permission is _____

Permission 1: _____

_____

_____

Permission 2: _____

_____

_____ [5]

**13** The employees in a small company use e-mail to send files to one another. Apart from the use of attachments, describe **two** other features of e-mail that the employees may use.

Feature 1 _____

_____

_____

Feature 2 _____

_____

_____ [4]

**14** A small company is considering the use of wireless technology. Describe **one** advantage of having a wireless connection and **two** disadvantages of adding a wireless connection to a network.

Advantage 1: _____

_____

_____

_____

Disadvantage 1: _____

_____

_____

_____

Disadvantage 2: _____

_____

_____

_____ [3]

**THIS IS THE END OF THE QUESTION PAPER**

112556