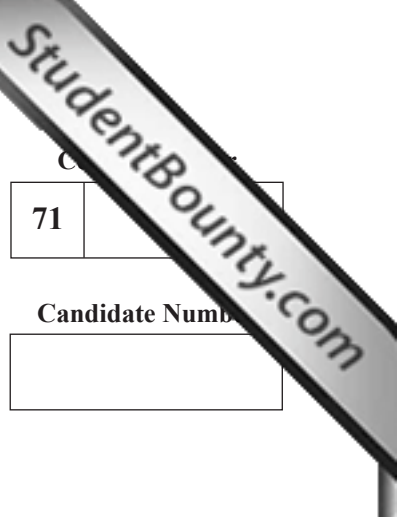




Rewarding Learning

ADVANCED
General Certificate of Education
2009



71

Candidate Number

Applied Information and Communication Technology

Assessment Unit A2 13

assessing

Unit 13: Networking and Communications

[A6J71]

FRIDAY 16 JANUARY, MORNING

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 sixteen** questions on the paper in the spaces provided.
Quality of written communication will be assessed in all questions.

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.

For Examiner's use only			
Question	Marks available	Marks	Remark
1	6		
2	8		
3	6		
4	2		
5	6		
6	8		
7	15		
8	10		
9	4		
10	5		
11	4		
12	3		
13	6		
14	3		
15	6		
16	8		
Total	100		

- 1 Each device in the table below may be connected to a computer using either a parallel port or a serial port when transferring data. In the table below tick (✓) to indicate which port the device named may typically have been connected to.
(Note: It is possible to put a tick in both boxes)

Device	Parallel	Serial
Modem		
Mouse		
Printer		
Scanner		

[6]

- 2 During data transmission **parity checking** is a checking method that is used to determine if a byte has been sent and received correctly. Complete the following sentences.

When a byte is received

- (a) the sent byte will be transferred _____ .
- (b) the start bits will be _____ .
- (c) the number of bits in the data byte plus _____ are _____ .

The total number of bits is compared and will give an odd or even number.

- (d) If the totals match then the _____ and the _____ byte is considered to have been sent (and received) properly.
- (e) If the totals do not match then it means that _____ .
- (f) When this happens _____ and _____ . [8]

3 Consider the following diagram (**Fig. 1**) which shows how a data packet is sent during synchronous data transmission.

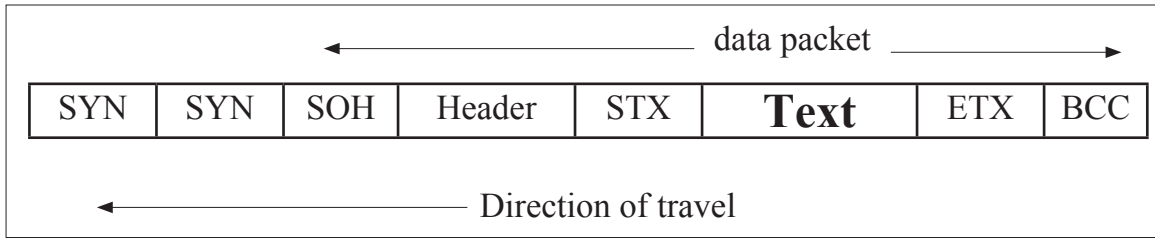


Fig. 1

The text in the data packet is surrounded by a number of bytes. Explain the main function of the bytes listed below.

(a) SOH _____

(b) STX _____

(c) BCC _____

[6]

- 4 The diagram **Fig. 2** shows a computer network card. Name the type of network in which you would expect to find this card. Give **one** reason for your choice.

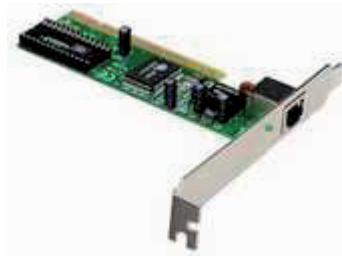
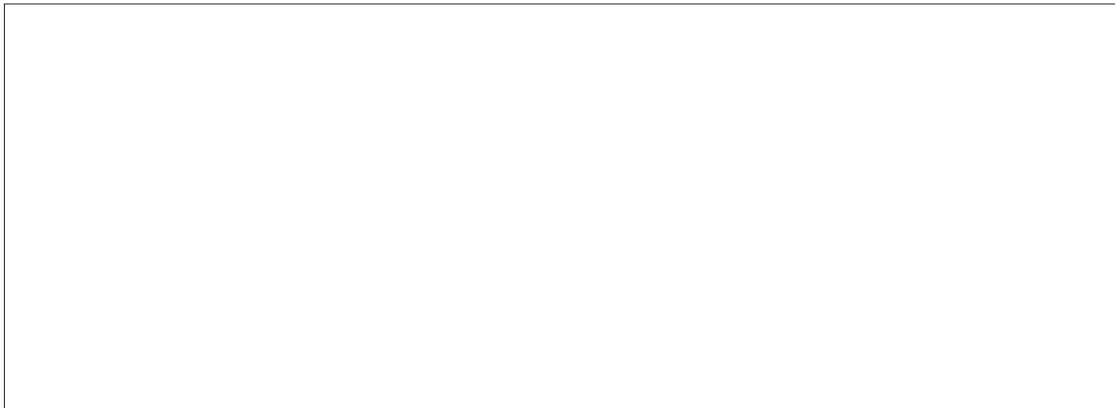


Fig. 2

[2]

- 5 (a) A small business has four stand alone Personal Computers plus a laser printer. Using another piece of hardware that the company must buy, draw a labelled sketch to show how the computers, the printer and the hardware device might be linked in a simple peer to peer network.



- (b) Name and describe the hardware device that the company should buy.

- (c) Explain what type of software is needed to enable the four computers to function in the peer to peer network.

[6]

6 A small company with 12 employees has an older bus based network of 15 computers with a laser printer. The network has a dial up Internet connection. Some employees use the Internet a lot for business purposes, other employees send multimedia files across the local network and others are mainly using the network for administration and word processing. All employees print out on the laser printer. One of the employees has network management responsibilities and she has received a number of complaints about problems occurring on the network recently. Name **two** such problems which may occur and give a solution to each of the problems you have mentioned.

(a) Problem 1

Solution to problem 1

(b) Problem 2

Solution to problem 2

[8]

7 A large commercial organisation uses a **client server** network to manage its business. The server supports over 30 stations distributed over three floors in the building (with a maximum of 12 computers per floor). Each group of computers on each floor is connected to a switch.

(a) Explain what is meant by the term **client server**.

[2]

Give **two** business advantages for the company to use a client server network.

Advantage 1:

Advantage 2:

[2]

(b) Explain the purpose of the **switch** found on each floor.

[2]

- (c) The company wants to upgrade its existing IT software. Explain briefly how the client-server set up makes this a straightforward process.

[2]

- (d) The company is considering giving all employees access to the Internet. Identify and describe **one** hardware component necessary to allow this to happen.

Hardware component:

Description of component:

[3]

- (e) The company would also like the employees to use a company intranet. Describe **two** business items that the employees might expect to find on the company intranet.

Intranet business item 1:

Intranet business item 2:

[4]

8 (a) Employees in a manufacturing company communicate and send documents to other businesses by fax. They have found this unsatisfactory for a number of reasons and have decided to use e-mail instead. Briefly describe **three** main benefits of using e-mail for business purposes.

Benefit 1: _____

Benefit 2: _____

Benefit 3: _____

_____ [6]

(b) Suggest **two** methods for protecting a user e-mail account from a virus attack.

Method 1: _____

Method 2: _____

_____ [4]

9 Consider the following sentences which relate to Ethernet.

Ethernet follows a simple set of rules that governs its basic operation.

It uses _____ transmission where the _____ medium is used

to transmit the _____ i.e. the raw data is transmitted using the full

bandwidth of the medium with no _____ .

Fill in the blanks with words from the list below. (A word can only be used once).

modulation	transmit	whole	baseband	signal	broadband	network
------------	----------	-------	----------	--------	-----------	---------

[4]

10 Complete the table below as shown by matching the most appropriate statements.

1	A router.....	E
2	DHCP.....	
3.	CSMA/CD.....	C
4.	Wireless networking.....	
5	A proxy server.....	
6.	A ring network topology.....	
7.	The WEP key.....	

- A. is a type of wireless encryption.
 - B. uses radio waves to send data.
 - C. is used within an Ethernet bus network.
 - D. is a computer that stores recently accessed web pages.
 - E. is used when connecting to the Internet.
 - F. sends data using a token.
 - G. is a protocol that allocates IP addresses.
- [5]

11 When a company's employees connect to the Internet the company will use a firewall to do some of the following tasks. Place a tick (✓) in the appropriate boxes that describe what a firewall does.

A firewall

prevents most viruses from entering the company network.	
is a sprinkler system that stops fires from destroying the servers.	
can act as a proxy.	
controls traffic between networks.	
can prevent certain web pages from being viewed.	
contains the companies Acceptable Use Policy (AUP).	

[4]

- 12 Tick (✓) the features below you would expect to find in a star topology type network.

A star topology

assigns IP addresses to computers in the star.	
stores network card serial numbers in a data file.	
uses an address resolution protocol (ARP) to look up web pages.	
can use a hub to transmit to all stations in a network.	
can use a switch in a peer to peer network.	
can be used in a client-server network.	

[3]

- 13 The following sentence describes the term Uniform Resource Locator (URL) used on the Internet.

URL is the _____ name corresponding to the _____ address of a computer on the Internet. URL is the _____ of a resource on the Internet. URL must be _____. Internet users access your _____ using your URL. An example of a URL is _____.

Fill in the blanks with words from the list below. (A word can only be used once).

unique	numeric IP	secure	website	text	personal
www.abc.com	abc.com	server	typical	address	account

[6]

14 In the table below tick only those features that apply to wireless networking.

It uses infra red transmission media to save files.	
It uses Ethernet technology to transmit data.	
It can be subject to war driving.	
It uses CAT5 cabling.	
It can be used in home networking.	
It can use encryption to protect data transmission.	

[3]

15 Local area networking has advantages and disadvantages. Name and describe **two** advantages and **one** disadvantage of LAN.

Advantage of LAN: _____

Advantage of LAN: _____

Disadvantage of LAN: _____

_____ [6]

16 Choose the correct words from the list below to complete the following paragraphs on wireless networking. (A word can only be used once.)

firewall	bigger	WEP	faster	Ethernet	detection	parallel	hotspots
vulnerable	video	hub	slower	server	encryption	RAM	text

Wireless networks are _____ than those that are directly connected through an _____ cable. A serious problem for wireless networks is the speed of _____ downloads.

A wireless network is more _____ than a network using cable because anyone can try to break into a network which is broadcasting a signal. Wireless networks use wireless traffic _____ for security. Many networks offer _____ because many wireless networks have been found to be susceptible to intrusion. Although this blocks some intruders, the security problems have caused some businesses to stick with wired networks until security can be improved. The use of a _____ will also help prevent security breaches.

Wireless networks may be available to the general public in areas called _____. The public can find these in areas such as airports, hotels and train stations.

[8]

THIS IS THE END OF THE QUESTION PAPER
