

INFORMATION AND COMMUNICATION TECHNOLOGY

PAPER 2B

Data Communications and Networking (Sample Paper)

Question-Answer Book

Time allowed: 1 hour 30 minutes
This paper must be answered in English.

INSTRUCTIONS

- (1) Write your Candidate Number in the space provided on Page 1.
- (2) Stick barcode labels in the spaces provided on Pages 1, 3 and 5.
- (3) Answer **ALL** questions.
- (4) Write your answers to Section B in the spaces provided in this Question-Answer Book. Do not write in the margins. Answers written in the margins will not be marked.
- (5) Supplementary answer sheets will be provided on request. Write your candidate number, fill in the question number and stick a barcode label on each sheet. Tie them loosely but securely with a string **INSIDE** this Question-Answer Book.

Please stick the barcode label here.

Candidate Number

	Marker's Use Only	Examiner's Use Only
	Marker No.	Examiner No.
Question No.	Marks	Marks
1		
2		
3		
4		
Total		

Answer all questions. Write your answers in this question-answer book.

(Modified from 2001 ASCA1 Q.11)

1. Tin-tin Book Company is a book wholesaler, and has been in business for over 20 years. It has been running its daily operations manually, including ordering and delivering books. Each department uses big filing cabinets to store information about books, invoices, customer details, etc. Last year, the company purchased several stand-alone microcomputers and printers for its various departments to handle daily transactions. In order to cope with business expansion, the company's management team has hired a system consultant to provide professional recommendations for improving the existing system and to study the feasibility of entering the overseas market.

(a) The consultant suggests connecting the stand-alone computers to make a local area network (LAN).

(i) Describe **two** advantages of using a LAN.

(ii) What peripheral device(s) should be installed in the computers for network connection?

(3 marks)

(iii) Beside the computers, state **two** other types of equipment that are needed to form the network, and describe their functions briefly.

(4 marks)

(b) After the company sets up the LAN, the consultant further suggests developing a web-based retailing application system to promote and sell books through the Internet.

(i) Give **two** possible advantages of doing business through the Internet.

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- (ii) Give **three** network considerations that the company should have in designing this application system. For each consideration, briefly describe how it affects the design.

(8 marks)

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(Modified from 2004 IT 1 Q.13)

2. A small business enterprise installs a number of personal computers (PCs). The enterprise applies for a business Internet service from an Internet Service Provider. The PCs installed with TCP/IP protocols are linked up in the form of a peer-to-peer network (p2p), which is then connected to a network device so that all the PCs can have access to the Internet.

(a) What is the main characteristic of a peer-to-peer network?

(2 marks)

(b) Why are the PCs installed with TCP/IP protocols?

(2 marks)

(c) In order to have its own web site and to enhance e-business, the enterprise subscribes to an Application Service Provider (ASP). An ASP is a third-party entity that manages and distributes software-based services and solutions to customers from a central data centre. The ASP provides two main products to the enterprise: (1) domain name hosting and web site hosting; and (2) communication applications.

(i) State **two** advantages and **two** disadvantages to the enterprise of subscribing to an ASP.

(ii) What types of services would you expect from the product “communication applications” provided by the ASP?

(6 marks)

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(d) To cope with future development, the company has decided to install a file server and a domain controller. The file server is used to store data and company files and the domain controller is responsible for user login.

(i) After the changes, the network is no longer a peer-to-peer network. What kind of network is it? What is its advantage over the peer-to-peer network?

(ii) The domain controller can directly refuse users permission to log on to the server. Give **two** other restrictions that can be imposed on the logon service.

(iii) Should all PCs be installed with the same network operating system? Why?

(5 marks)

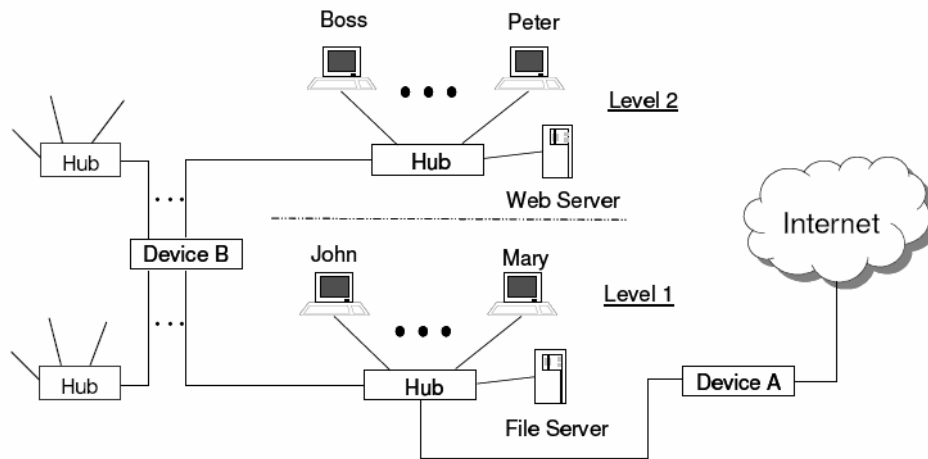
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(Modified from 2005 ASCA1 Q.10)

3. A company provides web page design and web hosting services and its office is located on two different floors of a commercial building. Its network infrastructure is shown below:



The web server stores the web pages produced by the company for their customers. The file server supports daily business needs.

- (a) (i) What is Device A? Justify your answer.

- (ii) Suggest **two** types of network devices that can be used for Device B. Explain briefly their difference, in terms of the performance in this network.

(5 marks)

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- (b) How should the network be open to staff so that they can access the file server outside their office? Give **two** possible solutions and state their major difference.

(3 marks)

- (c) The company decides to improve the network by the following actions. State the names of the devices to be added and the locations in the network.

- (i) Add a device for better security.

- (ii) Replace certain devices for better network traffic management.

(4 marks)

- (d) Suggest **two** feasible types of Internet connection for the network and state the major difference between them other than the bandwidth.

(3 marks)

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(2006 CECIT 2C Q.4)

4. A small company has set up a local area network in its office. The network consists of five personal computers (PCs) and a web server connected with bus topology. All PCs can access the Internet. The staff frequently surf the Hong Kong Government's web site for information. The Hong Kong Government's web site has the domain name 'info.gov.hk' and IP address '202.128.227.99'.

- (a) The company decides to employ a network administrator. Describe **three** essential duties of a network administrator.

(3 marks)

- (b) State one disadvantage of bus topology.

(1 mark)

- (c) How can a network administrator look for the IP address of a domain name?

(1 mark)

- (d) A user can view the government's web page using the IP address '202.128.227.99' but not the domain name 'info.gov.hk'. Suggest one possible reason for this situation.

(2 marks)

- (e) What kinds of network information can be extracted from the IP address '202.128.227.99' ?

(2 marks)

Answers written in the margins will not be marked.

- (f) The network administrator is going to ask users to choose their own passwords. Suggest **three** important guidelines that should be followed by all users when choosing a password.

(3 marks)

- (g) A network suffers from various kinds of attack.

- (i) One of the categories is called Spyware. What does Spyware do?

- (ii) Another category is called Adware. Describe how it affects the browsing of a web site.

(3 marks)

END OF PAPER

Answers written in the margins will not be marked.