



### 1.6.1 Data Security

May/June 2003. P3

3. Data security and privacy are major problems in using wide area networks. Describe methods that can be used to minimise these problems. [9]

Oct/NOV 2005. P3

7. (a) Some messages which are passed on a network are confidential.

State the meanings of the terms

- (i) encryption,
- (ii) message authentication and explain how they are used to maintain

confidentiality of messages. [6]

May/June 2007. P3

4. A retail business is to open a web site which will allow customers to order and pay for goods.

Explain the problems that can arise due to the confidential nature of some of the data. State ways of overcoming these problems. [8]

Oct/NOV 2007. P3

13. A mail order company employs a number of computer operators who take orders by telephone.

There is also a warehouse department from which orders are dispatched. The management staff interrogate the data to inform their decisions. The computers in all three areas are networked with a central storage facility.

(b) Describe how various users can be given different access to the data held on the central database. [2]

Oct/NOV 2009. P31/ P33

2. A bank has a large number of offices spread throughout a country. It is important for information to be passed freely between the bank's offices.

(b) Customers have to use the internet in order to do electronic banking.

Discuss the problems of maintaining confidentiality of data on the internet and the techniques used to address the problems. [5]





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#### Oct/NOV 2010. P33

1 An organisation has a large workforce. It is decided that an intranet be provided for use by workers in the organisation.

(c) When communicating electronically with people who are not members of the organisation, workers have to use the Internet.

Discuss the problems of maintaining confidentiality of data held by the organisation and the techniques used to address the problems. [6]

#### May/June 2011. P31/ P32

12. A business uses the Internet to communicate with suppliers and to pay bills electronically.

Discuss the problems of maintaining confidentiality of data on the Internet that can be used to address these problems. [6]

#### Oct/NOV 2011. P32

4 A health ministry has decided that it would be useful for doctors in that country to communicate using the Internet.

Patient records could be shared and advice could be given.

(a) Explain why patients may be worried about allowing their information to be used in this way. [3]

(b) Describe measures that could be taken to reduce the fears of the patients. [5]

#### Oct/NOV 2012. P33

7 (b) A retail shop has a Local Area Network of four computers and a fifth computer which acts as a print server.

(iii) The shop is concerned about the confidentiality of data stored and transmitted across the LAN and the WAN.

Name and describe three measures taken to protect the confidentiality of the data. [6]

#### Oct/Nov 2013. P31/ P32

7 Encryption of data is widely used in computing.

(a) One application is the sending of payment data using a debit/credit card for an online purchase.

State two other applications where encryption is used.

Describe the reason for encrypting the data for each application. [4]





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(b) Explain the terms encryption algorithm and encryption key. Encryption algorithm Encryption key. [2]

(d) Authorisation and authentication are processes designed to protect the computer system and data. Give one technique used for each. [1]

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May/June 2015. P11/ P12

6. (b) All of the uses in part (a) involve the input or output of data.

(i) Describe two methods of preventing accidental loss of data. [2]

(ii) Describe one way of ensuring the security of the data against malicious damage. [1]

May/June 2015. P13

3 (a) Give the definition of the terms firewall and authentication. Explain how they can help with the security of data.





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- (b) Describe two differences between data integrity and data security. [3]
- (c) Data integrity is required at the input stage and also during transfer of the data. [2]
- (i) State two ways of maintaining data integrity at the input stage. Use examples to help explain your answer. [3]
- (ii) State two ways of maintaining data integrity during data transmission. Use examples to help explain your answer. [3]

#### May/ June 2016. P13

7 A bank holds personal data about its customers and their financial data.

- (a) Describe the difference between security and integrity of data. [4]
- (b) Describe **three** security measures that the bank could implement to protect its electronic data. [6]

#### Oct/Nov 2016. P11/P13

7 A small company produces scientific magazines. The owner buys some new desktop computers.

The computers are used to store thousands of colour images (diagrams and photographs). All the computers have Internet access.

(c) Employees using the new computers receive training. At the end of the training, each employee completes a series of questions.

Three answers given by an employee are shown below.

Explain why each answer is incorrect.

- (i) *“Encryption prevents hackers breaking into the company’s computers.”* [2]
- (iii) *“The use of passwords will always prevent unauthorised access to the data stored on the computers.”* [2]

