



ICM

JUNE 2016

NETWORKS

Instructions to candidates:

- a) Time allowed: Three hours (plus an extra ten minutes' reading time at the start – do not write anything during this time)
 - b) Answer any FIVE questions
 - c) All questions carry equal marks. Marks for each question are shown in []
 - d) Mark allocation should determine the length of your answer and the time you spend on it. Generally, one mark is awarded for each valid point
 - e) Ensure that you pay particular attention to words underlined, in CAPITALS or in **bold**. FEW OR NO MARKS will be awarded to any question where these are ignored
 - f) Read all sections of any question before attempting any part of it
 - g) No computer equipment, books or notes may be used in this examination
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1.
 - a) **Star, Bus and Ring** are three different LAN network topologies. For EACH of these three topologies:
 - i explain how it works, using a diagram to illustrate your answer [18]
 - ii discuss its advantages and disadvantages [2]
 - b) Explain the importance of bandwidth.
 2.
 - a) The Internet has dramatically changed the way in which businesses operate. Discuss ways in which a business can use the Internet to transform how they do business, highlighting the advantages to be gained from using the Internet for business, and also discussing any disadvantages. [10]
 - b) A school is considering establishing an intranet for use by staff and students and have asked for your advice. Write a short report for the school outlining what they would need to do to set up an intranet, highlighting the advantages and any disadvantages of doing so. [10]
 3.
 - a) Write a set of guidelines for employees of a company advising them how to set their password and how to protect their online accounts. [8]
 - b) Explain what is meant by a **virus** and how we can protect a network from viruses. [6]
 - c) Explain what a **firewall** is and what it achieves. [6]

continued overleaf

4. a) Consider the following HTML code:
- ```

<HEAD>
<TITLE>This is an example of a HTML page</TITLE>
</HEAD>
<BODY BGCOLOR="WHITE">
<CENTER>
<H1>A Simple Sample Web Page</H1>
<H2>which demonstrates a few simple HTML features</H2>
</CENTER>
Hello <P>
<H3>again</H3>
<H1>This is a heading</H1>
<H2>This is another heading</H2>
<H3>This is another heading</H3>
<center>
This is the end of the page</BODY>

```
- Draw a sketch showing how the code would appear when rendered. Explain EACH line in your sketch. [10]
- b) Clearly define the terms '**World Wide Web**' and the '**Internet**' and explain the difference between the two terms. [6]
- c) Explain the purpose and function of the World Wide Web Consortium (W3C). [4]
5. a) You have been asked to draw up a set of guidelines for the use of email in an organisation. Write a set of notes in the form of a list of 'Dos' and 'Don'ts' for the use of email. [8]
- b) One of your staff is concerned as she has apparently been sending strange emails to her contacts, without her knowledge. Explain how this could have happened and what she might do to rectify the situation. [7]
- c) Explain what is meant by **phishing**. [5]
6. a) Explain the purpose and function of an ATM. [4]
- b) Discuss the following security issues in relation to an ATM:
- i Physical security
  - ii Customer identity integrity
  - iii Device operation integrity
  - iv Customer security and safety
- In EACH case explain how you would address that security issue. [4 each]
7. a) Explain the difference between a LAN and a WAN. [6]
- b) Explain what is meant by **broadband**, discussing the different media which it can employ and giving TWO examples of its use. [6]
- c) Explain what is meant by EACH of the following terms:
- i HTTP
  - ii FTP
  - iii TCP
  - iv CSS
- [2 each]
8. a) The Internet of Things and the Cloud are two new technologies which may transform how we live and work. For EACH of these two technologies, explain what it is and give an example of how it may affect how we live or work. [10]
- b) Explain the purpose of a search engine, and how it works. [10]