THE BRITISH COMPUTER SOCIETY

THE BCS PROFESSIONAL EXAMINATIONS
BCS Level 5 Diploma in IT

THE INTERNET & WORLD-WIDE WEB

2nd May 2007, 2.30 p.m.-4.30 p.m.
Answer FOUR questions out of SIX. All questions carry equal marks.
Time: TWO hours.

*The marks given in brackets are **indicative** of the weight given to each part of the question.*

Calculators are NOT allowed in this examination.

1. *a)* Expand each of the following and define their meaning:
   i) TCP/IP
   ii) FTP
   iii) HTTP
   iv) IMAP
   v) HTML   **(10 marks)**

   b) The current Internet Protocol allows for approximately 4,000 million unique addresses – which is quickly becoming exhausted.

   Define what is meant by IPv6 and NAT (sometimes known as IP masquerading). How can these help in solving the address shortage?   **(5 marks)**

   c) Explain the role and architecture of the Domain Name Service (DNS) in the operation of the Internet.
   (5 marks)

   d) Building on, but not repeating your answer to *c)*, explain how the HTTP protocol facilitates the stages between a user requesting and receiving a web page.   **(5 marks)**

2. *a)* Briefly explain the purpose of each of the following:
   i) SMTP Server
   ii) Proxy Server
   iii) POP3 Server
   iv) DNS Server
   v) DHCP Server   **(10 marks)**

   b) Explain the technical differences between webmail and conventional email systems.   **(5 marks)**

   c) Broadband has accelerated the use of the Internet as a multimedia environment. What are the issues that need to be addressed when multimedia content is delivered on the Internet? Illustrate your answer with reference to specific examples of multimedia formats.   **(10 marks)**

3. You have been invited to give a talk to local business people about the Internet. For each of the following sub-topics, list the main points that you will include in your talk:

   a) The architecture of the Internet **(5 marks)**

   b) Services that run on the Internet **(5 marks)**

   c) Who funds the Internet? **(5 marks)**

   d) The roles of Internet Registrars and Internet Service Providers **(5 marks)**

   e) RFC, W3C & IETF **(5 marks)**

4. *a)* When is it appropriate to use client-side scripting or to use server-side scripting? Illustrate your answer with suitable examples. [Do NOT write any code.] **(10 marks)**

   b) Describe the issues associated with browser compatibility for client-side scripting languages. **(5 marks)**

   c) Discuss FIVE factors that contribute to a good navigation scheme for a website. **(10 marks)**

5. *a)* Outline THREE distinct methods by which a home user can connect their PC to the Internet. **(5 marks)**

   b) List FOUR factors that a user should consider when choosing a method of connecting his/her PC to the Internet. **(6 marks)**

   c) Evaluate EACH of the methods identified in part *a)* against EACH of the factors identified in part *b)*. Present your answer as a table, e.g.

	Factor One	Factor Two	Factor Three	Factor Four
Method One				
Method Two				
Method Three				

(14 marks)

6. Acting as a consultant for a small company wanting to sell products via the Web, describe how you would configure their web server to host a fully interactive website with a back-end database by answering the company directors' specific questions:

   a) What sort of approaches and technologies are available for hosting and serving the web pages and what are the benefits of each? **(15 marks)**

   b) How could the website be used securely by both external and internal users? **(5 marks)**

   c) What audit facilities would you recommend to monitor user activity? **(5 marks)**