

**THE BRITISH COMPUTER SOCIETY**  
**THE BCS PROFESSIONAL EXAMINATION**  
**Diploma**

**MULTIMEDIA**

13th May 2003, 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.*

1. a) i) What are the industry standards for delivering multimedia on a PC? (10 marks)  
ii) How relevant are they to today's multimedia requirements? (5 marks)
- b) Survey the typical multimedia application areas. (10 marks)
2. a) Define the terms *display resolution*, *colour depth* and *frame rate* and explain the influence that each has on the multimedia experience. (12 marks)
- b) i) Distinguish between GIF and JPEG and explain the purposes for which each is suitable. (8 marks)
- ii) Which of these two formats would you use to produce a simple, small, animated logo on a web page? Justify your answer. (5 marks)
3. a) i) What are the THREE worldwide analogue video broadcasting standards? (3 marks)  
ii) Why are these standards unsuitable for video on a desktop computer? (5 marks)
- b) i) Explain the meaning of the terms *encoding*, *compression* and *codec*. (6 marks)
- ii) Does encoding always imply compression? Illustrate your answer with a relevant example. (6 marks)
- c) Suggest TWO formats which are suitable for video on a desktop computer, justifying your answer. (5 marks)
4. a) What do you understand by the terms:
- Magneto-optical devices
  - CD-ROM, CD-R and CD-RW
  - DVD-ROM and DVD-RAM
  - Flash RAM, Memory cards and memory sticks? (8 marks)
- b) A small publishing company, with limited knowledge of IT systems, has approached you asking for advice on the range of available multimedia peripherals and devices. Give a review of the available devices and explain the main elements you would include in the advice to the company. (17 marks)

**Turn over]**

5. i) Explain the MIDI format. **(5 marks)**

ii) "MIDI is no longer a viable format."

Outline the alternative audio formats which have given rise to this statement. Describe the hardware and software systems which support these formats. **(10 marks)**

iii) Compare and contrast the different approaches to digital sound production and clearly indicate their use within multimedia applications. **(10 marks)**

6. A lecturer wishes to develop a CD-ROM to support the teaching of a BCS module on 'The World Wide Web'. The content is divided into four sections (each with four subsections):

a. Introducing the Internet and WWW (subsections: evolution, architecture, standards, networks)

b. Internet Services and Applications (subsections: Email, remote login, file transfer, HTTP)

c. Website Development (subsections: HTML/scripting, tools, media, design)

d. Related Issues (subsections: hosting, performance, security, privacy)

Each section has a title sequence incorporating a short video followed by a menu page leading into the subsections. Each subsection has a number of pages of text and graphics. At the end of each subsection there are three or four self-assessment questions. At the end of each section there are several multiple-choice questions and a list of additional resources (including URL references to material on the web).

Produce an outline design description, with justification, for the above system. Your design should clearly indicate the proposed structure and visual appearance of the system. You should also explain how the media elements (text, graphics and video), the assessment questions and resource links will be handled in your design. **(25 marks)**