

PAPER CODE NO.  
COMP106

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## **SEPTEMBER 2000 EXAMINATIONS**

Bachelor of Arts : Year 1  
Bachelor of Science : Year 1  
Bachelor of Science : Year 2

## **SOFTWARE DEVELOPMENT IN PRACTICE**

**TIME ALLOWED : TWO Hours**

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### **INSTRUCTIONS TO CANDIDATES**

**This examination paper is in two sections A and B. Section A deals with HTML and Ethical issues and Section B deals with Java and User Interfaces.**

**ATTEMPT ALL QUESTIONS**

If you attempt to answer more than the required number of questions (in any section), the marks awarded for the excess questions will be discarded (starting with your lowest mark).

## SECTION A

There are a total of 50 marks for this section. It is suggested that you spend between 1 - 1.25 hours on this section.

UNLESS OTHERWISE STATED, EACH QUESTION IN THIS SECTION IS WORTH ONE MARK

1. Explain clearly the meaning of the term 'Hypertext'. [2 marks]

2. What was the contribution of Vanevar Bush to the development of ideas related to Hypertext? [2 marks]

3. How do links in HTML support the idea of hypertext?

4. What does the acronym 'URL' stand for?

5. The syntax for a URL is the following:

*scheme://host.domain/path/filename*

To what does '*scheme*' refer here?

6. Give four examples of what a 'scheme' could be in question 5. [2 marks]

7. Comment on why, maybe, saving a document in html format from a word processing editor may not reach a professional standard.

8. In relation to the rules of the British Computer Society (BCS), what is the difference between a Code of Conduct and a Code of Practice?

9. Name one other professional organisation apart from the BCS which provides its members with guidance on acceptable behaviour within the IT industry.

10. With regard to Computer Ethics, what are Mason's four ethical issues? [2 marks]

11. The quotation below is an item in a BCS code

"Members shall ensure that within their chosen fields they have knowledge and understanding of relevant legislation, regulations and standards and that they comply with such requirements".

Is this quotation taken from the Code of Conduct or the Code of Practice?

12. With regard to the quotation in question 11 distinguish between personal, professional and organisational standards.
13. Which UK Act of Parliament makes it illegal to knowingly or unknowingly allow, encourage or pressure employees to make or use illegal copies of sources within the organisation?
14. What does the BCS advise if you were to find a serious compromise between a professional and an organisational standard in your place of employment?
15. Which U.K. Act of Parliament has the following aim?
- “An Act to make new provision for the regulation of the processing of information relating to individuals, including the obtaining, holding, use or disclosure of such information”.
16. Which U.K. Act of Parliament criminalises “Unauthorised modification of computer material”?
17. Distinguish clearly between owning a copywrite and owning a patent.
18. Which ISO standard is concerned with providing a framework for quality management and quality assurance?
19. What does "ANSI" stand for?
20. What is the BSA and which company started it?
21. What is the U.K. equivalent of the BSA?
22. What is software theft?
23. Which major piece of U.K. legislation could be used against someone who has carried out software theft?
24. What is a software audit and what is its purpose?

**[2 marks]**

25. What is meant by the term 'intellectual property'?

Read the following paragraph which is related to questions 26 and 27.

Marjorie A. Simpson is a second year undergraduate at the New Forest Spring University, UK. The results of her first year examinations which are held in an electronic database have not been forwarded to her because she has not paid her tuition fees. She is sent a reminder by post to her old postal address but does not receive the forwarded mail. Wanting to learn her results she demands access to the data.

With regard to the Data Protection Act 1998, answer the following **two** questions:

26. Why does she have a right to demand the results?
27. Why can sending mail to an old address be interpreted as contravening the Act?
28. Some very enterprising students develop a piece of software based on a smart data compression algorithm which they read about in a technical journal. The author of the algorithm, who is based at the same institution as the authors of the software learns of their work and threatens to take legal action. What legal action could the algorithm developer take?

**[3 Marks]**

29. The following is a list of guidelines for setting out an HTML document
- (a) Sign your work.
  - (b) Give its status.
  - (c) Use context-free document titles.
  - (d) Format device-independently.
  - (e) Use standard HTML.
  - (f) Use style sheets.
  - (g) Write readable text despite the links.

Explain how such lists are valuable in maintaining a professional attitude to the production of code and how items a, b, e and f in the question would contribute to the production of a professional piece of work.

**[4 marks]**

The following question is worth **TEN** marks.

30. Discuss the maze of the ethical problems that have and could emerge as a result of the INTERNET and WWW. [10 marks]

## **SECTION B**

### **ATTEMPT BOTH QUESTIONS IN THIS SECTION**

1(a) Briefly characterise the following categories of user, and for each category, give two properties of a user interface that would be required particularly by users in that category:

- Novice users.
- Knowledgeable, infrequent users.
- Expert users.

**[9 marks]**

1(b) In the context of user interface design, what is meant by "direct manipulation"? Give two advantages of direct manipulation, and briefly describe two problems that might arise in designing or in using interfaces for direct manipulation.

**[6 marks]**

2(a) Briefly describe two requirements on security for Applets in the programming language Java, and outline how these requirements are met in the design and implementation of the `Applet` class.

**[6 marks]**

2(b) From the point of view of user interface design, give two reasons why an application might want to use concurrency.

**[2 marks]**

2(c) What is meant by "synchronization" in Java? What problem is it intended to address, and how does it address that problem?

**[7 marks]**