

# **Computer Science Department**

## **Dummy Cover Sheet**

**M.Sc. / Coll Dip**

**D03    Computer Management, 1998-99 and resit 1997-98.**

**2 hours 30 minutes**

Bernard Buxton and Andrew Scott

*Answer THREE questions.*

*All questions carry equal credit. The use of electronic calculators is permitted.*

**Question 1**

(a) Describe how the managers of a computer system of some 200-300 networked workstations, servers and PCs in, for example, an industrial R&D centre should go about their job. Include in your answer discussion of the management's aims and responsibilities and what actions they should take to ensure these are met.

**[10 marks]**

(b) Explain why it is important for the managers to know how the system should normally behave.

**[10 marks]**

(c) Discuss the trade-offs in running such a computer system at high and low levels of utilisation. Use your conclusions to explain why it may sometimes be necessary to ration certain facilities. Describe the criteria such a resource control system should meet and, using the example of disc space allocation, describe the kind of control system you would use in order to try to ensure these criteria are met.

**[13 marks]**

**[TURN OVER]**

## Question 2

(a) Discuss the importance of standards in computing, illustrating your answer by reference to:

- (i) programming languages,
- (ii) the benchmarking of computer processor speed,
- (iii) quality assurance within an organisation.

[11 marks]

(b) Explain how professional codes of practice and conduct are similar to, yet differ from, standards. Illustrate your answer by describing the rules in a code of practice and in a code of conduct such as those recommended by professional institutions like the IEE or BCS.

[10 marks]

(c) Explain why certain aspects of computer systems have to be protected or restricted by laws specifically drafted for the purpose. Illustrate your answer by discussion of the Computer Misuse and Data Protection Acts in the UK.

[12 marks]

## Question 3

Two graduates have set up a company to provide a design service for the construction industry. The company plans to invest £200,000 immediately in computer equipment. Profits are envisaged from the investment as follows :

|        |           |           |
|--------|-----------|-----------|
| Year 1 | - £70,000 | ( a loss) |
| Year 2 | £70,000   |           |
| Year 3 | £80,000   |           |
| Year 4 | £30,000   |           |

[Question 3 cont. over page]

[CONTINUED]

**[Question 3 cont.]**

Assume :

- Profit is calculated after depreciation (calculated by the straight-line method) of the equipment is deducted.
- Estimated resale value of the equipment at the end of Year 4 is zero.
- The cost of capital is 15%.
- The present value of £1.00 received at the end of:

|        |         |
|--------|---------|
| Year 1 | £ 0.870 |
| Year 2 | £ 0.756 |
| Year 3 | £ 0.658 |
| Year 4 | £ 0.572 |

(a) Calculate :

- (i) The payback period [2 marks]
- (ii) The Net Present Value (NPV) [6 marks]
- (iii) The average **annual** rate of return on average capital invested [3 marks]

(b) Assume that the computer equipment includes a multi-processor machine designed and developed in a University Computer Science department; the machine runs a special operating system that allows the computer to achieve much higher execution speeds than those previously available

The computer is being launched this month by a well-known distributor who is handling all sales and after -sales service

Discuss the risks of proceeding with this investment

[12 marks]

(c) Advise the two directors of the company whether to proceed with the investment.

[10 marks]

**[TURN OVER]**

#### **Question 4**

You have been offered the post of Project manager for the installation of a network of 200 computers throughout a Business Park that will house twenty companies.

- (a) Describe the components of the Project Life Cycle.

**[8 marks]**

- (b) Discuss the steps you would take in evaluating the project before deciding whether to accept the post.

**[8 marks]**

- (c) This will be a difficult project to complete because of the limited time available. Discuss what types of authority are open to you in your role as project manager.

**[8 marks]**

- (d) You will need a project team of 10 members. Discuss your priorities in setting the team's culture.

**[9 marks]**

**[End of paper]**