

THE BRITISH COMPUTER SOCIETY
THE BCS PROFESSIONAL EXAMINATION
Diploma

PROJECT MANAGEMENT

27th April 2004, 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. An organization is planning to implement a computer-based human resources (HR) management system.
 - a) Discuss the advantages and possible problems that the managers of the organization would need to consider when deciding whether to obtain an off-the-shelf (OTS) package, rather than developing the application in-house. **(12 marks)**
 - b) Outline SIX major stages involved in a project which is to acquire and install an OTS package for the HR management system. In your outline identify some of the activities involved in each stage. **(13 marks)**

2.
 - a) Explain the differences between top-down and bottom-up effort estimating, illustrating your answer with examples of each. **(10 marks)**
 - b) *“Function point analysis is primarily a method of measuring the size of a computer application, while COCOMO models the productivity that might be expected in a particular project. As such they can be used as complementary techniques.”*

Explain what is meant by the above statement, and discuss the extent to which you might agree or disagree with the statement. Your explanation should identify the key elements of the two approaches. You do NOT need to provide precise details of the calculations used in function point analysis or in COCOMO unless the details are required to illustrate a particular point. **(15 marks)**

3.
 - a) Explain the difference between quality control and quality assurance. **(4 marks)**
 - b) Describe the different types of testing that might be used during a project to develop and implement a new software application. Explain how each type of testing contributes to the overall quality of the project’s deliverables. **(12 marks)**
 - c) List and briefly explain the activities, apart from testing, that could be used to ensure the quality of the intermediate and deliverable products of a software development project. **(9 marks)**

Turn over]

4. A commercial enterprise, 'Company X', is to implement a new computer-based accounting package that will replace an existing out-of-date system that had been developed internally. The new application will be provided by an outside software supplier, 'Company Y', who will customize a standard product in order to meet the particular functions required by 'Company X'. A project is to be set up which will include the modification of the application and its installation. The end of the project will be when the system is first used operationally.
- Identify and explain the management roles, project organization and the relationships between the different management roles and organizational units which will be required for this project. **(8 marks)**
 - Apart from the management roles identified in *a)*, identify the other groups of people (in both Company X and in Company Y, or elsewhere) who might be involved in implementing the project, for example in technical roles. Where necessary make clear the nature of the tasks they would undertake. **(9 marks)**
 - Specialists together with staff from different departments and from other organizations have to be brought together to work on the project. Identify FOUR obstacles to effective team working and explain how they could be overcome. **(8 marks)**
5. A small research group in your organisation is being relocated to new offices. The IT section have planned the move with 8 main tasks:
- | | | |
|---|---|---------|
| A | order, deliver and install server | 2 weeks |
| B | design and install network infrastructure | 4 weeks |
| C | order, deliver and install PCs | 3 weeks |
| D | test server and network | 1 week |
| E | test PCs with server and network | 1 week |
| F | copy database to new server | 1 week |
| G | copy statistical software to new PCs | 2 weeks |
| H | test PCs, all software and database | 1 week |

Tasks A, B and C can run simultaneously, but A and B must both be completed before D can start. Tasks C and D must be completed before E can start. E must be completed before F and G can start. F and G can run simultaneously, but must both be completed before H can start.

- Draw a Gantt chart for this project, showing each of these tasks and each task duration.
Draw a network diagram (Activity on Node) for the same project tasks, showing the earliest and latest start dates, the earliest and latest finish dates, duration and float for each task.
Highlight the critical path on both diagrams.
What is the total duration of this critical path? **(17 marks)**
- Briefly discuss the most significant differences between the two types of diagram used in *a)*, highlighting TWO advantages of the Gantt chart and TWO advantages of the network diagram. **(8 marks)**

6. You work for a small software house whose main work is the development and production of bespoke software systems for clients. Each such development can be for one or more clients, and each is treated as a separate project. Such projects are fully planned with the client and justified internally at the outset.

a) Briefly outline four general reasons why a project may not be a success. **(8 marks)**

b) Choose three of the reasons you gave in answer to part a) and for each of the three give at least one specific possible factor that could result in such an outcome. **(6 marks)**

c) A small team is midway through a project, which is to develop new software for a prestigious client. The team leader has left, and you have been assigned the role of team leader. Your Managing Director (MD) is concerned that there have been a number of problems with the development so far, with considerable overtime being worked.

i) Identify the information you need from the project team in order to establish the present situation and specify the methods you would use to obtain the information. **(7 marks)**

ii) List the main contents of your initial report to the MD. **(4 marks)**