THE BRITISH COMPUTER SOCIETY

THE BCS PROFESSIONAL EXAMINATION Diploma

PROJECT MANAGEMENT

27th April 2005, 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 new financial services company has been formed through the merger of two well-established companies. Each of the old companies had different computer-based accounting packages. These are to be replaced by a single new off-the-shelf accounting package that has already been purchased from a well-known vendor. The accounting system will have at least 600 users of various types distributed across five regions. The new package will be supported by a group of eight technical staff who will provide telephone support and will also carry out training both centrally and locally.
 - *a)* Identify FOUR major problems, apart from that of team-building, which will need to be addressed with regard to the activities needed to change over to the new accounting system. (8 marks)
 - *b)* Describe the main methods of 'going live' with a new computer application and explain which approach should be adopted in the scenario above. (14 marks)
 - c) Explain the meaning and purpose of post implementation reviews. (3 marks)
- 2. A software development company has been using the basic COCOMO model to calculate development effort, that is (staff-months) = $c x (kloc)^k$

Rather than use the standard constants, the company has calculated its own based on its own past project data. The overall model seems to be generally satisfactory when past project data are examined. However there are sometimes large discrepancies with individual projects which have, for valid reasons, particularly high or low productivity rates. Another problem is that the number of lines of code estimated for new projects often seems to turn out to be wrong - function point counting has been suggested as a solution to this last problem.

a)	Explain the meaning and purpose of each of the three terms, (c, kloc and k), in the COCOMO equation above.	ation
1-)	Identify a lettern to the estimation much and an end of the model.	(8 marks)
D)	Identify solutions to the estimating problems mentioned above, namely:	

i)variations in productivity between projects(8 marks)ii)inaccurate estimates of the number of lines of code(9 marks)

3. The IS department of a medium-sized local firm has been asked to develop a bespoke database system for another department within the firm. No suitable packages are available. Board approval has been obtained based on a feasibility study, requirements have been agreed with the user department, and the data model is agreed.

The project manager has prepared an outline development schedule of eight main tasks, and has allocated staff, as follows:

А	define database functionality	3 weeks	1 system designer
В	design data entry/enquiry screens	2 weeks	1 system designer
С	design reports	1 week	1 system designer
D	code and test database functions	4 weeks	1 programmer
Е	code and test screens	4 weeks	1 programmer
F	code and test reports	3 weeks	1 programmer
G	integration testing	1 week	1 tester
Η	user acceptance testing	1 week	1 tester

Tasks A, B and C can start at the same time.

Task D is dependent solely on A, task E is dependent solely on B and task F is dependent solely on C. Task G cannot start until all 3 tasks, D E and F, are completed. Task H is dependent on G.

- *a) i)* Draw a Gantt chart showing all eight tasks and their dependencies, assuming no limitation on resources.
 - *ii)* Use the Gantt chart to identify the minimum duration for the project, and the float belonging to individual tasks.
 - *iii)* Explain the significance of free float, as opposed to other types of float, with reference to this Gantt chart. (11 marks)
- b) Shortly before week 1, the project manager is told that only two system designers are now available for the next three weeks. Re-draw the Gantt chart to take account of this limitation. Is there any change in the overall duration, and if so, why?
 (6 marks)
- *c)* Identify and explain briefly SIX factors that the project manager might consider when allocating staff to such a project. (8 marks)
- 4. A retail business is considering the replacement of one of its main stock management and distribution systems.
 - *a) i)* Identify up to SIX factors (quantitative or qualitative) that might contribute to the business case for such a project.
 - *ii)* Name two specific financial measures that could be used to assess the financial value of a project when assessing the business case. (11 marks)
 - *b)* The project has been approved and will include 4 main components:
 - *i*) a new off-the-shelf database package
 - *ii)* some key bespoke systems development to extend this package
 - *iii)* replacement computer hardware (PCs and servers)
 - *iv*) improvements to the data communications network

Select THREE of these components and for each of these describe TWO specific potential problems and explain their possible impact on the original business case. (9 marks)

c) The bespoke software component is to be undertaken by the in-house IT department. Identify THREE key reports that the project manager would require in order to monitor and control this component of the project and ensure that the business case is maintained.
 (5 marks)

5. *a)* Explain the purpose and responsibilities of the following project management roles.

i)	project board (or steering committee)	(4 marks)
ii)	project manager	(4 marks)
iii)	programme and project support office	(4 marks)
iv)	project assurance.	(3 marks)

b) In the scenario described above in Question 1 above, a new IT management team will have to be created. Describe, making reference to established organisational behaviour models (where appropriate), the possible obstacles to the smooth operation of the new team and explain how the obstacles could be overcome.

(10 marks)

6.	a)	Giving examples, explain the difference between quality control and quality assurance.	(4 marks)
	b)	Identify FOUR different types of testing. In each case, explain the purpose of testing and who it out.	should carry (8 marks)
	c)	<i>i</i>) Explain how you can assess and ensure the quality of the testing process.<i>ii</i>) Explain how you can reduce errors occurring in the software in the first place.	(7 marks) (6 marks)