THE BCS PROFESSIONAL EXAMINATION
Diploma

April 2000

EXAMINERS' REPORT

Project Management

Question 1: - Answer Pointers

This question related to the network analysis and critical path aspects of the syllabus. It required candidates to demonstrate their ability at drawing up and interpreting activity-on-arrow network diagrams. The question was attempted by all candidates, and given the average mark was 16 out of 25, the question was generally well done.

It was clear that candidates who achieved low marks in part a) did not really understand how to draw up an activity on arrow network diagram. The diagrams were incomplete and/or drawn up using a different notation and/or the figures on nodes and arrows were inaccurate. Several candidates did not understand the role of dummy activities when showing activity dependencies.

Part (b) asked for the critical path and the minimum project duration. Where candidates appreciated the fact that the critical path should involve all those activities where there is zero float, but did not get the right activities due to inaccuracies on the diagram, some credit for the accurate recognition of the critical path was given. Most candidates worked out the correct minimum project duration (37 days).

Question 2: - Answer Pointers

Candidates will have appreciated the question related to the syllabus aspects regarding project management and quality management. Also to the use of Post Implementation Reviews, walkthroughs, testing, implementation plans and configuration management in the management of project quality.
The question was attempted by 75% of candidates, and the average mark was 11 out of 25.

- Part (a) required candidates to consider the relationship between project and quality management. Good marks were achieved by candidates that provided good definitions of project management and quality management, either implicitly or explicitly as part of their answer, and also explained a suitable relationship between project management and quality management. Some argued that project management is essentially quality management, as the objectives are the same – to produce "a quality product" i.e., a product that is on time, to or within budget, what the stakeholders' want, and with zero defects. Others argued that project management included quality management. Both views were considered appropriate if well justified.

Part (b) required four of five project management concepts to be briefly described. A description of how each of the four chosen concepts assists in the management of a project's quality was also expected. It was clear from the answers that some candidates attempted this question without really understanding the project management concepts. Others explained

what the concepts were, but forgot to relate the concepts to the support of project quality, such as the following points illustrate:

Project costing - Quality enhancement:

> Individual element breakdown enables more accurate cost estimate than guestimating a total value, thereby more easily keeping within, or to, budget.
>
> Review of estimates at the end of project helps ensure better project estimating in the future.

Walkthroughs - Quality Enhancement:

Ability to spot errors quickly, so there is less chance of erroneous development. The final product is therefore more likely to be complete, and developed on time and within budget.

Joint Applications Development (JAD) - Quality enhancement:

> Increases the ability for the final product to be what the users wanted.

Decreases the time required to obtain deliverables.

Configuration management - Quality Enhancement:

> Used to understand how the system is configured, and what needs to be tested when a change is made.
>
> Used to ensure that the most recent live versions of functions comprise the delivered system.

Post Implementation Review - Quality Enhancement:

> The lessons learnt with respect to the project should enable better project management in the future, leading to a better quality approach to projects.
>
> Lessons regarding user/stakeholder satisfaction may lead to better insight as to how to manage user/stakeholder expectations, and to provide more effective ways of eliciting user requirements.

Question 3: - Answer Pointers

Question 3 related to the syllabus regarding project effort estimation approaches, and how MIS, CASE tools and computer-based project management software supports project management. The question was attempted by 72% of candidates, and the average mark was a little disappointing at a bare pass (i.e., 10 out of 25).

Most candidates were able to mention two appropriate project effort estimation techniques in their answer to part (a), such as Delphi, rules of thumb, and work breakdown structures. However, to gain the maximum three marks per technique, candidates needed to provide more than just the name of each technique.

Part (b) required candidates to discuss the supporting role of MIS, CASE tools and computer-based project management software in project management. . Some points that candidates might have made regarding project management support and each tool include the following:

CASE tools:

> CASE tools can aid project estimation and project control. For example, they may record aspects of work completed (depending on their characteristics), such as who was involved and time taken, which can be used to aid estimation of similar planned activities in the future. The original project plan, when the specification of the system has been completed and described to a CASE tool, may be easily seen to be too difficult to achieve, leading to project modifications.

Project Management (PM) Software:

> Aids in project planning, by drawing up a Gantt chart from the descriptions given, working out the critical path and resource requirements, automated resource smoothing, etc..
>
> Aids in project monitoring and control, entering actuals showing deviations and their effects on the critical path, highlighting aspects where contingency plans need to come into play or changes need to be made, etc..

MIS:

> Can help project control, by providing a series of reports regarding the project – cost reports, work completed vs. planned reports.
>
> An MIS subsystem may be found within Project Management software.

Many candidates failed to provide adequate discussion of the role of each tool, providing just a list of points with no additional explanation or discussion. For example, with regard to computer-based project management software, a candidate's answer might indicate that "it aids planning", or "it draws diagrams", but failed to link these features to how they aid project management specifically. Several candidates discussed how CASE tools aid software development rather than project management, and lost marks as a consequence.

Question 4: - Answer Pointers

The question was attempted by 65% of the candidates, they achieved an average mark of slightly under the pass mark of 10 out of 25 marks.

a) Candidates were expected (i) to describe how, given a preliminary plan, the number and types of staff required for a project could be identified, and (ii) to suggest how the staff could then be acquired. It was envisaged for (i) that the project manager would need to:

- inspect the plan and allocate the types of staff needed for each activity
- work out (perhaps using a planning tool) a resource histogram showing the demand for each type of staff during each project period (e.g. week or month)
- perhaps adjust the plan to smooth resource demand e.g. by delaying some activities until other have finished and resources are released

The answers to this part of the question tended to be disappointing. Some, for example, suggested the use of COCOMO which might be used to assess effort, but would not indicate how many staff might be needed at any one time (e.g. 40 staff weeks of effort could be supplied by 10 staff over 4 weeks or 4 staff over 10 weeks etc.). Many answers did not even acknowledge the need to identify the *types* of resource needed for each activity.

For (ii) most candidates were able to identify the sources from where staffing could be acquired and obtained marks, but many did not go on to explain the processes that would need to be undertaken to

obtain staff from each source. A key element missed by almost all candidates was the need for job specifications.

b) This asked candidates to explain how the risks of personality incompatibilities could be reduced in project teams. Candidates familiar with the Belbin concept of management team roles, or similar models, were at an advantage here. Otherwise fairly commonsense ideas about the careful selection of staff, team-building, and using established teams all gained marks.

Question 5 – Answer Pointers

This was the least popular question with only 31% of the candidates selecting the question. An average mark of less than 9, out of 25 marks, suggests they were not well prepared.

a) Candidates were asked for the format of a progress report. This was a straightforward question requiring a straightforward answer which most candidates were able to supply. A small minority however simply described the general format of any report. Among the elements of the report that could have been mentioned were the following:

- schedule status, perhaps in the form of an updated Gantt chart;
- list of tasks due to start in reporting period and whether they have or not;
- list of tasks due to be finished in reporting period and whether they have or not;
- budget status: could include an accumulative bar graph showing actual accumulated costs versus planned;
- actual or potential problems;
- status of previously identified problems.

b) Most candidates seemed to find it easy to get marks for this question which asked for the data that would need to be collected in order to control a data transfer operation.

Examiners expected details of:

- number and percentage of documents transferred to electronic medium: to check basic progress;
- number and percentage of documents checked and corrected: to monitor quality of transfer and amount of rework;
- staff hours expended: progress may seem satisfactory, but this may be at the cost of overtime etc.
- transfer rates: to check productivity – this may show that more or less staff hours than originally planned are needed.

Question 6: - Answer Pointers

Some 55% of candidates chose to answer this question, achieving an average mark of 11 out of 25 marks.

a) Part a) asked for an explanation of the term risk exposure, and very few candidates gave convincing answers. Risk exposure is usually defined as (potential damage x probability of risk occurring) where potential damage is best measured in money or lost time. The risk of occurrence is normally represented as a probability.

b) Part b) asked the candidate to explain four possible risks associated with a particular set of circumstances and to suggest preventative and contingency actions for each of the risks identified. Once again candidates could get good marks by essentially applying common sense and most did. Where marks were lost in identifying risks it was often because the candidate either identified the damage, e.g. a late project, but not the cause, or identified unsatisfactory circumstances, e.g. inexperienced staff, without suggesting what damage might result from this. It was noteworthy that few candidates distinguished between preventative and contingency measures.

Risks could have included:

- lack of motivation by contract staff to produce good quality work as they will not be responsible for maintenance;
- poor equipment performance – hardware configuration may not be suitable for new software architecture and the resulting transaction load;
- design is produced which is not easy to implement using the new architecture, leading to technical difficulties;
- estimates of effort required to implement requirements not adequate because of lack of experience of this type of work.

Risk reduction or contingency actions in the case of the examples above, might have included:

- balancing contract staff with motivated permanent staff; carry out reviews and inspections; enforce standards;
- performing simulations and benchmarking tests; check out other sites with similar configurations and workloads;
- using evolutionary prototypes to establish requirements
- using incremental approach so that early increments can provide productivity rates for planning later increments; time-boxing

c) This required a method of evaluating whether a risk reduction action was worth taking. A good answer would have mentioned:
   - calculating the risk exposure before the risk reduction action
   - calculating the risk exposure when risk reduction action taken
   - calculating the cost of the risk reduction action
   - comparing the cost of the risk reduction action with the reduction in risk exposure.

   Few candidates managed to cover all the elements.