BCS HIGHER EDUCATION QUALIFICATIONS
BCS level 5 Diploma in IT

April 2011

EXAMINERS' REPORT

IT Project Management

Section A

Question A1.

Your company is expanding rapidly and has decided to buy in and install an off-the-shelf (O-T-S) ledger package to replace the existing manual system. This will need new equipment and network cabling throughout the offices. You are to manage this project. You have drawn up an outline project plan to include the following main tasks:

	Task	weeks
A	Interview accounts staff, draw up and agree a list of main requirements	6
B	Assess alternative O-T-S packages and select the most appropriate.	6
C	Specify and order all the required new hardware and communications equipment.	3
D	Test and install all the new hardware and equipment.	9
E	Modify and test the package software.	15
F	Install the package software	1
G	Specify and obtain the accounts data required to implement the system	6
H	Draw up a training plan.	3
I	Train the users	9
J	Draw up an acceptance test plan	3
K	Acceptance testing	4
L	Load data and implement the new system.	3

a) Draw a work breakdown structure (WBS) diagram for the project, to show all the planned tasks. This WBS should contain at least two levels.

(4 marks)

b) Explain the main differences between this WBS and a product breakdown structure (PBS) diagram for the same project.

(3 marks)

c) The dependencies between the 12 tasks listed above are:

B depends on A
C, E, H and J all depend on B
D depends on C
F depends on D and E
G depends on E
I depends on H
K depends on F, I and J
L depends on G and K

Draw a full Gantt chart for the project, showing all dependencies and floats and highlighting the critical path.

(10 marks)

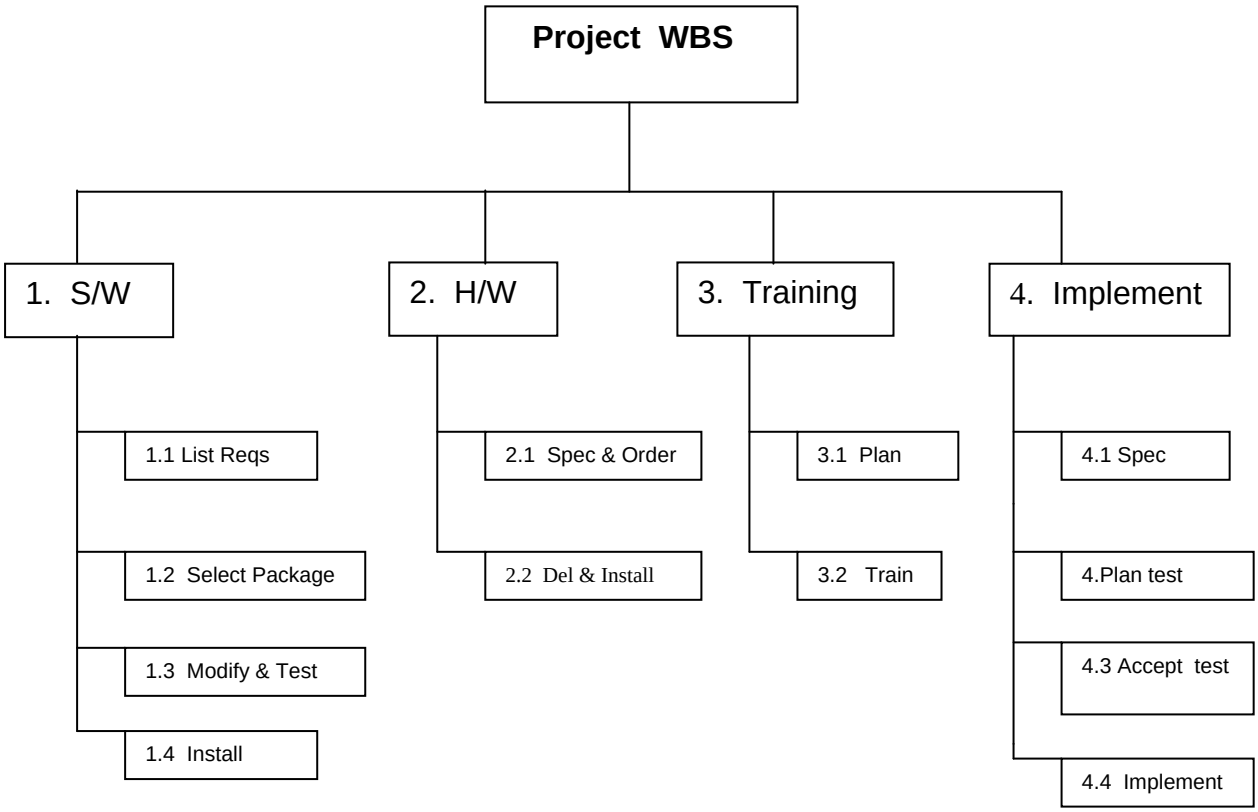
d) At the end of week 24, tasks A, B, C, D, H, I and J have been completed on schedule, and task E is continuing on schedule. However it is realised that task F will now take 3 weeks, starting from week 28.

Re-draw the Gantt chart to reflect this progress to date, making any necessary changes, and highlight the critical path.

(8 marks)

Answer Pointers

a) 4 marks were awarded (2 for a valid structure and 2 for completeness) for a well-structured WBS diagram similar to that shown below provided that **ALL** the 12 named tasks were included AND they had been grouped sensibly under named topic groups with a clear numerical numbering system.



b) 2 marks were awarded for straightforward definitions of WBS and PBS, e.g.:

WBS sets out in a structured diagram the tasks to be **undertaken** during the project

PBS sets out in a structured diagram the **deliverables and intermediate required** during the progress of the project

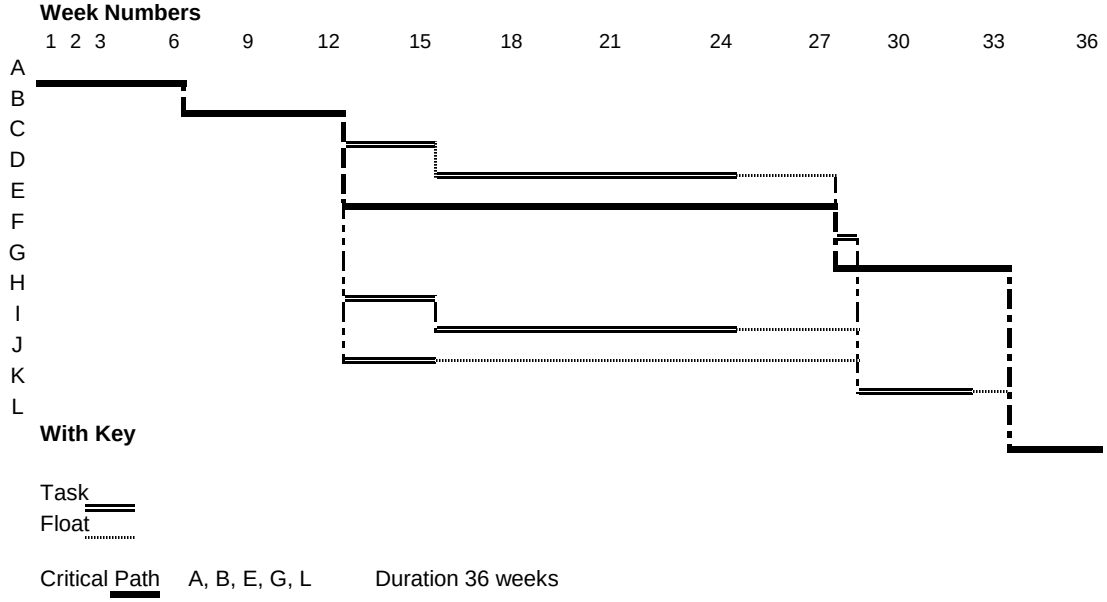
A further 1 mark for an explanation making clear that these deliverables are the necessary outcome of some (but not all) project tasks.

e.g. task A is to draw up and agree the list of requirements whereas the required deliverable is the list itself.

A bonus mark was awarded here for a good clear example.

c) 10 marks awarded for a Gantt chart similar to that shown below, with up to 5 marks for correct structure including clear, correct dependencies and a key, up to 3 marks for all floats being shown clearly on the diagram and a further 2 marks for highlighting the (correct) critical path ABEGL (which should complete at the end of week 36):

Q1 c) Gantt Chart, similar to



c)	Marks for correct structure and dependencies	5
	All correct floats	3
	Correct critical path and duration	2
		10

d) Marks for re-drawing the above

All progress to date marked	3	
Change to duration of Task F	2	
3 weeks yet to complete on Task E	1	
New Critical Path A, B, E, F, K	2	New duration 37 weeks
	8	

d) The 8 marks awarded here for the re-drawn diagram included specific marks for:

- the change in duration to Task F
- deducing and showing the new critical path ABEFKL ending in week 37.
- showing clearly (by some form of highlighting) all completed and part-completed tasks at the **end** of week 24,
- showing clearly that Task E still has 3 weeks to complete

Examiners' Guidance Notes

Overall, many candidates answering this question had a good understanding of a work breakdown structures, but product breakdown structures were much less well understood.
Many candidates seemed to prefer to start their answer to part c with an Activity-on-Node diagram before producing the required Gantt chart. This does imply a lack of confidence in planning and drawing a Gantt chart quickly and clearly, and might also have lost considerable time in the exam. Disappointingly few answers to part d reflected the progress to date (as specified in the question) in the re-drawn diagram.

a) When drawing a WBS diagram the tasks should first be separated clearly into logical groups (as shown in the example) as a basis for the diagram structure. This can then be emphasised by choosing a clear heading for each group, numbering each of these headings, and then continuing the numbering method to indicate the tasks and sub-tasks at the lower levels within each main group.
Several candidates either did not include all 12 tasks in the diagram or invented different tasks, sometimes to reflect "standard" project development tasks (e.g. "feasibility" to "implementation") – not the tasks set out in this question.

b) Answers here were disappointing. The concept of a task deliverable was not well understood. It should be emphasised that not all tasks have deliverables, and that these deliverables are not necessarily part of the completed project. Many PBS answers concentrated more on the hardware and software elements required for the completed project, so deliverables such as the training plan were ignored.

c) Many answers presented good, basic, well-scaled Gantt charts, albeit after first drawing a rough A-on-N diagram. However often **all** the dependencies were not shown correctly or clearly (especially those following non-critical tasks), and thus floats were either omitted completely or shown incorrectly with the wrong duration. In particular, the vertical (dotted?) lines showing dependencies should not continue down to the bottom axis of the diagram. The Critical Path was not always highlighted well on the diagram, and sometimes only the critical dependencies were highlighted, but not the critical tasks.
The duration unit (i.e. weeks) was sometimes omitted.

d) Answers here were disappointing in that very few candidates highlighted the progress to date (e.g. by thickening each task line to show if that task had been completed or partially completed) on the Gantt chart. There was also sometimes confusion in interpreting the phrase "starting from week 28". This would normally imply starting at the start of week 28, not the start of week 29. In a Gantt chart the week numbers on the time axis show the end of each week.

Question A2

a) What are the FOUR key objectives of the project manager when considering project success?
List and explain FOUR key skills that a project manager should have.

(10 marks)

b) A project manager may bear in mind Belbin's theory when building his project team. List and explain at least SIX team roles that Belbin defines.

(10 marks)

c) The project team has become unhappy as two popular, experienced team members have been transferred to another key project. The remaining members are required to take on the work of these two members. List THREE actions that the project manager could take to improve the morale of his team?

(5 marks)

Answer Pointers

a) 2 marks awarded for naming the four key objectives, which are to deliver the project to meet the agreed requirements within time and budget and to adequate quality.

Then up to 8 marks (2 for each clearly different skill) for identifying and explaining each of 4 key skills, probably from the following:

- good communications (with a bonus mark for including this)
- good leadership
- staff motivation
- planning
- negotiating
- delegating

b) Belbin's standard list of 9 teams roles, which needed to be named precisely, is:

- Action Oriented Roles
  - Implementer
  - Shaper
  - Completer/Finisher
- People Skills Oriented:
  - Co-ordinator
  - Teamworker
  - Resource Investigator
- Cerebral/Intellectual:
  - Plant
  - Monitor/Evaluator
  - Specialist

There was no specific need to name the three groups of roles, but a bonus mark was awarded for this.
Up to 5 marks were awarded for a list of 6 of these roles with a further 5 for the quality of the explanation, and distinction between, those listed

c) Actions by the project manager to improve the morale of the team in these circumstances could include:

- Organising an outside team event
- Individual meetings with staff, perhaps to discuss or develop motivational issues and emphasise new prospects now arising from this project
- Recruiting more staff to replace those who have been taken off
- Perhaps agreeing a project bonus, or special overtime payments

Up to 2 marks were awarded for each sensible, different type of suggested action, to the maximum of 5 marks.

Examiners' Guidance Notes

Overall, although this was (just) the most popular question in Section A of the paper, parts a and c were answered much better than part b, which many candidates did not attempt, indicating a quite limited knowledge and understanding of Belbin's work on the behaviour patterns that people exhibit when working in teams.

a) Surprisingly, many candidates omitted an answer to the first part of this question, which is very much a standard answer for all projects.
In the second part some answers tended to concentrate on experience, knowledge, previous jobs and perhaps ability rather than skills, some of which are innate and some of which can be learned. Answers needed to be specific, rather than generalised (e.g. "technical", "management", "friendly" are too vague). For instance, previous experience as a project manager is not a skill, nor is it necessarily essential.
"Good communication" skills are probably the most important, but it needed to be emphasised in the explanation that these are required outside the team (e.g. with senior management and other stakeholders) not just within the team.
Some interesting additional "skills" were mentioned especially "political" and the "willingness to break rules" in order to achieve project objectives. In addition "Punctuality" was often mentioned, though this is not really a skill.

b) As mentioned above, the overall knowledge of Dr. Belbin's work and theories on team roles, based on patterns of behaviour, was very limited. Some candidates tended to concentrate on project development and the skills needed in a project team. However those who had learned and understood the theory on the whole produced good, thorough answers even though the interpretation of some team roles (e.g. between completed/finisher and teamworker) were sometimes confused.

c) This was by far the most popular and well-answered part of this question. Perhaps candidates were able to visualise such a situation well as they usually produced a sensible variety of possible actions, although there was a tendency to concentrate on various forms of financial inducement rather than other aspects of motivation, such as improved prospects and the opportunities offered to become involved in more interesting or varied work. There may also be a need to extend the project timescales or its scope if the team cannot be re –strengthened quickly.

Question A3

a) Define the word “stakeholder” in relation to an IT development project.

(3 marks)

b) You work for a small research organisation. It is part of a federation of similar research organisations, each operating in a different part of the country. At the moment each of these organisations uses a different main computer system. It has been decided that the computer system used by your organisation should be extended and then used by all of the other organisations, to replace their existing systems. A network would be set up linked to the main server, which would be located in your organisation’s offices.

List and explain at least FOUR different types of stakeholder in this new project. Identify their main concerns and their stake in the project.

(12 marks)

c) A project sponsor has also been appointed. Name at least THREE people, or groups of people, who would then be directly responsible to the sponsor

(6 marks)

d) You have been appointed as the project manager and need to set up a project team. Using the Tuckman model, list and explain very briefly the four main phases that the team might go through before becoming fully effective.

(4 marks)

Answer Pointers

a) **A Stakeholder** is anyone with a valid interest in, or affected by, an IT project (2 marks) or the products delivered by it (1 mark).

b) Stakeholders **in this scenario** could include:

- all project personnel, including the project team (their reputation might be at stake if the project fails, or would be enhanced by project success)
- other staff in your office, whose responsibilities and workload are likely to increase
- senior management at your office, who will be responsible to the national federation for the success of the project;
- the IT staff in other offices, who will need to understand the replacement system – and whose jobs may be at risk
- other staff in other offices, who will be required to learn and use the replacement system
- all suppliers involved in the extension of the existing system.
- Senior management at the national federation (who would probably be the project sponsor)

Each of these groups might have clearly different concerns and stakes.

Up to 3 marks were awarded for each of 4 different types of stakeholder identified, provided that likely (and sensible) concerns and stake(s) were clearly identified and discussed for each type listed.

c) Any of the following could be named as being responsible to the project sponsor:

Project board
Project manager

Project support office
Configuration management office

2 marks awarded for **each** person or group named, up to a maximum 6 marks

d) The 4 phases of the Tuckman model are:
Forming, storming, norming, performing – **in this order**.

2 marks for the correct list plus 2 for explanations.

Examiners' Guidance Notes

This was by far the least popular question in Section A. Overall, the concept of a stakeholder was not well understood though most candidates answering this question were able to demonstrate an awareness of the Tuckman model (in part d).

a) Many candidates considered there to be only one stakeholder (the "owner" or "financial backer" of the project) which then impinged on their identification of the full range of different types of potential stakeholder (for instance: those "directly involved", "indirectly involved" and/or "affected by").

b) Very few candidates answered this part well. Many answers tended to concentrate on a "standard" project rather than that described in the scenario. "Concerns" were sometimes identified well but there was then very little distinction between these concerns and stakes. This often showed a very limited understanding of the concept of "stake" – i.e. what has the individual, or group of individuals, to gain or lose from the success or failure of the project. This could be reputation, money, jobs, responsibility or (perhaps) a change from interesting, exciting work to dull, boring work. Sometimes an analogy with stakes and betting helps here.

c) This part required a basic knowledge of project organisation, but was not often attempted.

d) Most answers demonstrated a sound knowledge of the four main phases of the Tuckman model, some even added a fifth "adjourning". However the explanation of each phase (and sometimes their order) was not always clear.

Section B

Question B4

a) Identify TWO roles involved in project quality.

(8 marks)

b) Describe THREE differences between quality assurance and quality control.

(6 marks)

c) i) When using a product based planning approach where are quality criteria stored?

(2 marks)

ii) In addition to the quality criteria what other information is need to ensure quality control is carried out?

(4 marks)

d) List FIVE headings in a Quality Plan.

(5 marks)

Answer Pointers

a) Roles may include Auditor, Tester, Project Support expert, Technical Assurance, Configuration Librarian, Design/Change Authority

b) QA checks that QC is carried out

Quality assurance	**Quality control**
Audit against procedures	Check against criteria
External to the project	Internal to the project
Timing of QA may be beyond PMs control	Timing of QC is PM's control
Excluded from project budget	Included in project budget

c) Criteria are contained within the Product Description under a heading called Quality or Acceptance Criteria. In addition to the criteria we need to know who will carry out the tests and the conditions in which the tests will be conducted (how close will the test environment be to the actual production environment) and even when will the tests will take place (if any special timing issues need to be considered).

d) Responsibilities, who (including management and key stakeholders) is responsible for what
Design Control - the procedure for sign-off, changes
Non-conformance and corrections - how it will be dealt with and conditions that cause it
Records and Documentation - what will be recorded, by what means, storage and security
Links to QMS, external standards or company policy
Any specific quality training required
Audit arrangements

Examiner Guidance

a) Most candidates didn't identify roles. A role is a performed by a person. It is a job within a project or organisation. One of the roles most often cited was that of project manager on the grounds that the project manager is responsible for everything. However, marks were only awarded for Project Manager when the candidate had highlighted the specific duties of a PM that are directly related to Quality, for example scheduling quality reviews on the project plan.

b) On the whole this was answered well but a number of students mentioned that Quality Assurance is done at the end of a project or that it could only be done by an external organisation such as ISO.

c) Only one student correctly identified the location of the criteria and many others failed to identify the extra information.

d) The contents are fairly generic and some flexibility was used in allocating marks. It was anticipated that many students would score well with this question. However, many answers listed quality criteria for products or records of test results.

Question B5

You are nearing the end of a year-long software development project and are now planning for the implementation of the new applications into live operations. The project executive is very anxious about this project and has asked you to plan for the following.

- the company has five sites and the project sponsor wants one to Go Live on each of the four days after the main site has implemented.
- the project sponsor wants to make the decision to Go Live for the first site and then wait one month after Go Live before agreeing to close the project.

a) Create a checklist of key activities that must be done before project executive can give make the decision for the first site to Go Live.

(6 marks)

b) List the activities that can be done after Go Live and before Project Closure.

(6 marks)

c) After Go Live you notice that the Helpdesk is getting an increasing number of calls about problems with the new system. Based on the scenario provide TWO possible explanations for this.

(8 marks)

d) Many weeks or months after Project Closure another important meeting must take place. What is it and what should it cover?

(5 marks)

Answer Pointers

a) Is there a back out plan?

Is testing complete?
- users
- support

Is documentation complete?
- users
- support

Is training complete?
Has communication with those affected taken place?
Are support arrangements in place?
Has an impact assessment on current operations taken place?

b) Review any lessons learned
Pay any outstanding bills, to contractors etc
Close down the risk log and communicate any outstanding risks
Fix any minor defects/errors that have emerged after Go Live
Celebrate
Disperse team to new assignments
Close down budget
Schedule a project review

c)

1. Users have not been trained well enough and are unable to use a perfectly implemented IT system
2. Users have been trained well enough but the system is riddled with bugs and errors
3. The phased rollout means that more calls are coming through because more users are coming online but the number may tail off later on.
4. As whole groups of new users log on at the same time it puts an unusual strain on the system.

d) Project Review 1 mark and 2 each for any of the below.

- It will include an assessment of the project in terms of how it met its original requirements/objectives and delivered the anticipated benefits or solutions.
- It will examine the working of the system and in particular any operational issues.
- It will highlight any lessons learned since project closure
- It may be the mechanism which triggers final contractual payments e.g. bonus or stage payments to contractors.

Examiner Guidance

The three sections in this question were designed to test the candidate's understanding of important project management activities at key parts of a project. While many candidates knew about the activities, it was difficult for some to associate them with the right part of the project. For example some candidates knew that user documentation was important but associated this activity with after Go Live and before project closure when clearly it will be needed before Go Live. One possible explanation is that candidate's didn't fully understand the meanings associated with Go Live, Project Closure and Post Project. Go Live is the actual implementation of a system or the switching on of a new system. It is when the system is used for real for the first time. Project Closure is the act of closing down

project structures and mechanisms and reporting lines. Post project is after Project Closure.

Question B6

a) The first step in managing risk is to identify the risks. Describe THREE methods you could use for identifying/ uncovering / revealing risks.

(6 marks)

b) In all cases you can choose to accept a risk rather than take any action. Describe THREE situations when accepting a risk might be the best option.

(6 marks)

c) Describe THREE risk responses designed to deal with a risk when it happens and THREE that take pre-emptive actions.

(13 marks)

Answer Pointers

a) Consulting experts
Examining previous projects esp Lessons Learned Logs
Brainstorming/workshoping with project team
Checklists
Risk software Tools
Interviews/Questionnaires

b) When the expense associated with taking action will compromise the viability of the project.
When the delay associated with taking action will compromise the rationale of the project.
When taking action would cause new, greater risks to appear
When either the probability or the impact is very small

c) Responses designed to deal with the effects of a risk when it happen: accept, transfer, contingency
Responses taken in advance to pre-empt harm from a risk - avoid / prevent, mitigate, defer, reduce either impact or probability

Examiner Guidance

a) A number of candidates answered this question with probability, impact and proximity but the question was very much about techniques for identifying risks. This is something that maybe done at the start of the project as part of initiation/start-up or throughout the project as part of an ongoing risk management process.

b) Many candidates said that it was appropriate to accept a risk when nothing can be done about it. However, this is not a valid answer because you can't choose this option. This question was about deciding to take action or not.

c) Candidates who scored highly organised their answers into the two categories asked for. Candidates who scored poorly just offered up a single list of possible responses. The question also tested a candidate's understanding of the vocabulary of Risk Management by asking for a description rather than a list. Candidates who offered up a list of single words scored low marks. Very

few candidates scored highly in this section and as it counted for over half the marks in Q6 very few candidates gained high marks for this question.

General

It had been noted by markers that there was an increasing tendency within the group of candidates taking this examination to ignore the question asked and to simply write down everything they knew about a particular subject - this was most noticeable in the areas of risk and quality. It was possible for candidates to gain marks simply because parts of their answer happened to coincide with the marking sheet. To overcome this problem both risk and quality questions asked the candidate to apply or categorise in their answers. One consequence of this has been that the number of candidates passing these questions is much lower than with the other two questions.