UNIVERSITI SAINS MALAYSIA

Second Semester Examination
Academic Session 1999/2000

February 2000

CSI513 - Project Management in Information Technology

Duration : [3 hours]

INSTRUCTION TO CANDIDATES:

- Please ensure that this examination paper contains **FOUR** questions in **THREE** printed pages before you start the examination.
- Answer **ALL** questions.
- You can choose to answer either in Bahasa Malaysia or English.

ENGLISH VERSION OF THE QUESTION PAPER

1. You work for a chemical manufacturer which manufacturers polythene, synthetic rubber and olefin at three sites. In the past the sites had operated individually using System 38, AS/400 and HP 3000s to meet their data processing needs. This year the company has earmarked RM4M to implement a client-server project. All current server systems are to be replaced with RS6000s running AIX.

   The SAP R/3 suite of accounting, manufacturing and distribution modules will be developed and installed during the next twelve months. The three manufacturing sites systems are going to be integrated centrally onto one system. The RS6000s will act as servers to a PC network which will have 123 users.

   (a) As project manager how would you manage the risks behind this project? Your answer should include the four risk management components and the risk table.

   (b) For this particular project, define the project classification and explain how are you going to implement the project management life cycle.

   (c) What programming team structure would you choose? Explain your decision based on the seven factors proposed by Mantei (1981).

   (d) Describe how you would like to develop this project with respect to the two layers of software engineering below:

      (i) *quality* (how would you ensure product quality?)

      (ii) *process* (which process model would you choose and why?)

(35/100)

2. (a) Explain in detail, the "Facilitated Application Specification Technique (FAST)" approach. Indicate how it can improve the analysis process.

   (b) Explain one important aspect of a software product as proposed by McCall's software quality factors.

   (c) What is the difference between *software configuration management* audit and a *formal technical review*?

   (d) "Variation control is the heart of quality control". Since every software that is created is different from every other software, what are the variations that we look for and how do we control them?

   (e) Information engineering strives to define *data architecture* and *application architecture* as well as *technology infrastructure*. Describe what each of these terms means and provide an example for each.

   (f) Restructuring and forward engineering are part of the activities in software reengineering process model. Briefly explain the *differences* between *restructuring* and *forward engineering*.

(30/100)

3. (a) There is a surprising evidence that some large companies are CASE (Computer Aided Software Engineering) tools and are re their software development project.

   (i) Discuss the deficiencies of the present generation of CASE toc

   (ii) What advice would you give to such companies?

   (b) Suggest three different ways in which software organisation can provide incentives for software engineers to practice reuse in the software engineering project. What technologies should be in place to support reuse effort?

(15/100)

4. A project was in the final stages with implementation after user training due to start in two months time. The software was available and was robust. The next activity was to develop training material for about two weeks worth of user training. Two teams of trainers (team A and team B) were recruited to meet these requirements. There were no existing training or documentation standards and the trainers were allowed to use their own standards.

   Team A of trainers believed that the quality of training would improved if screen dumps are incorporated in the manuals. They started developing manuals to this standard. Team B did not incorporate screen dumps but included full user key strokes, the manuals looked acceptable.

   After a month into the project you find that team A are taking longer to deliver their material than team B. They argue that it takes longer to develop to what they claim are better quality standards. You now believe that team A will not meet the deadline.

   (a) What would you say are the critical deliverables of this project?

   (b) What are the implications of a delay in the development of the training material?

   (c) How did the problem occur in the first place and what lessons do we learn?

   (d) List the items that would be useful to investigate/evaluate after a project has finished.

(20/100)

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