

## C9-R3: ADVANCED SOFTWARE PROJECT MANAGEMENT

### NOTE:

1. Answer question 1 and any FOUR questions from 2 to 7.
2. Parts of the same question should be answered together and in the same sequence.

Time: 3 Hours

Total Marks: 100

1.

- a) Contrast the benefits of an object-oriented requirements specification with those of a functional decomposition.
- b) List the characteristic for which prototyping is most appropriate. Give an example of a system for which developing a prototype will not result in saving a significant amount of development time.
- c) Give five quality attributes of a software product.
- d) CASE tools are useful, integrated CASE tools even more. What kinds of integration exist?
- e) Describe briefly any cost estimation techniques.
- f) Explain why the success of a system depends heavily on the quality of the documentation generated during system development.
- g) State the common characteristics and differences of LOC and Function Points estimation technique used in a software project.

(7x4)

2.

- a) Define error, fault and failure. What is the difference between a fault and a failure? Does testing observe faults or failures?
- b) Should a development organization adopt a single process model for all of its software development? Discuss the pros and cons.
- c) On a software development project, what kinds of activities can be performed in parallel? Explain why the activity graph sometimes hides the independencies of these activities?

(6+6+6)

3.

- a) The SEI software capability model distinguishes five levels. Give their names and explain their characteristics.
- b) Explain the phrase “*organisational process focus*” in the context of an advanced level of software development capability.
- c) Product and process standards are available to modern software engineers. In an organisation with a *process focus*, which type of standard dominates? Give reasons for your answer?

(8+5+5)

4.

- a) Briefly describe the differences between the top-down and bottom up effort estimation approaches.
- b) If your project involved integration of many off – the – shelf components, which project estimating, approach would you choose & why?
- c) Explain how the COCOMO approach estimates maintenance effort. Show the use of this model with some reasonable figures.

(6+6+6)

**5.**

- a) List the activities of a software project manager. Where are decisions made? When are they group decisions? When are they individual decisions?
- b) List some information that may be useful in recording the reuse history of a component. Justify the same.
- c) Explain why a high degree of coupling among components of software can make maintenance very difficult.

**(6+6+6)**

**6.**

- a) What are software metrics? What is the role of metrics in project management?
- b) Describe the difference between process and project metrics.
- c) Explain the different framework activities and task regions in the Spiral Model of a software process.

**(6+3+9)**

**7.**

- a) Distinguish between variant and version during configuration management of a software product. Illustrate your answer with suitable diagrams to make the distinction clear.
- b) What is configuration audit? Develop a checklist for use during configuration audits.
- c) What is configuration status reporting? Explain its role in a software development project.

**(8+5+5)**