

Uva Wellassa University of Sri Lanka
Faculty of Science and Technology
Computer Science and Technology Degree Programme
2nd Year 2nd Semester Examination – August/September 2014
CST 226-2 Software Engineering and Quality Assurance



Number of questions: Four (04)
Answer all questions
Time allocation: Two (02) hours
Total mark: 100

1.
 - a. Describe the waterfall model of software development and discuss its strengths and weaknesses. (06 mark)
 - b. For which of the following projects would waterfall model be suitable, and why?
 - i. An incremental compiler for Java
 - ii. A word-processing package (04 mark)
 - c. State the advantages and disadvantages of the evolutionary model of software development. (03 mark)
 - d. Is evolutionary model more, or less, suitable than the waterfall model for safety-critical projects? Justify your answer. (03 mark)
 - e. What are the four (4) sectors in Spiral Model of software development? (03 mark)
 - f. Compare and contrast exploratory development with Throw-away prototyping. (06 mark)

2.
 - a. What are the key challenges in software development? (04 mark)
 - b. Software Engineers have responsibilities to the engineering profession as well as to the society. Explain four (4) guiding principles included in the Software Engineering Code of Ethics by IEEE-CS/ACM task force. (06 mark)
 - c. Explain the followings.
 - i. Non-functional requirements
 - ii. Quality reviews
 - iii. Architectural Design Styles (15 mark)

3. a. "It is more important for a software project manager to have good communication skills than technical skills". Do you agree with this statement? Justify your answer. (04 mark)
- b. A programming team has been asked to produce an object oriented architectural model for the system they will develop. This model shows the classes that will be used and their interfaces. The team has been given a deadline when this model must be finished.
- What is a milestone in a project development cycle? (03 mark)
 - Is this model likely to be a milestone, a deliverable or both? Justify your answer. (04 mark)
- c. Describe the risk management process in software development. (06 mark)
- d. Why it is important to have a good user interface for any kind of software system? (04 mark)
- e. What are the human factors that you have to consider when designing a user interface? (04 mark)
4. a. Using examples, explain the terms "verification" and "validation". (05 mark)
- b. Explain the difference between "white box testing" and "black box testing" with respect to program testing. (05 mark)
- c. Explain two specific laws of software evolution as formulated by Lehman. (04 mark)
- d. Provide a brief description of the "V model of development" and discuss its suitability for the software development projects of today. (06 mark)
- e. "Software maintenance cost is usually greater than software development cost". State whether you agree with the above statement. Justify your answer. (05 mark)