

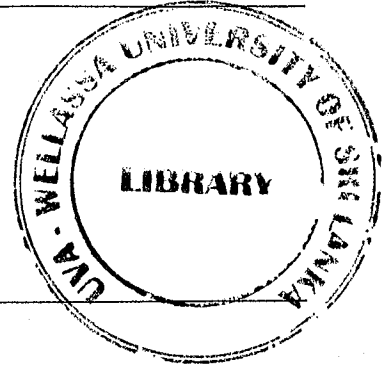
Instructions to candidates

Duration: Two (02) hours

Number of questions: Four (04)

Mark allocation: 100

Answer all the questions



1.
 - a.
 - i. State what is meant by functional and non-functional requirement. (8 mark)
 - ii. Explain why non-functional requirements also should be analyzed carefully as like functional requirements with an example. (5 mark)
 - b. Write short notes on "Software Engineering Ethics" (4 mark)
 - c. Differentiate **verification** and **validation** in the software testing. (3 mark)
 - d. Mention any three (03) automated testing tools which are used in Sri Lankan software industry. (10 mark)
 - e. Assume you are a Quality Assurance Engineer (QAE) and explain based on which criteria you will choose test cases for testing an Automated Teller Machine (ATM) system. (10 mark)

2. A car manufacturer wishes to save weight and improve reliability by replacing most of the vehicle's wiring harness with a local area network. Systems such as engine management, anti-lock braking, traction control and stability control will thus share common platform components. Your task is to ensure that the safety of these systems, and of the vehicle electronics overall, is not impaired by this upgrade.
 - a. Describe the development methodology that you would adopt for the project, and justify your answer. (10 mark)
 - b. How would you ensure the subsequent development of these subsystems are not compromise the vehicle safety?
[Hint - you should assume that subsystems are supplied by different subcontractors] (10 mark)

3.

a.

i. Describe why most of the software industries prefer agile process for software development process (5 mark)

ii. Discuss the strengths and weaknesses of agile methodology. (10 mark)

b. Select the suitable agile methodology for the following projects separately and justify your answer.

i. an incremental compiler for Java

ii. a clinical-record-keeping system for dentists

iii. a word-processing package

(15 mark)

4.

a. You work for a large "social networking" company which has recently introduced a one-to-one chat mechanism, promising that they will never censor conversations. Users are reporting that their friend's computers are being compromised by malicious software. When users click on links within messages sent by this malicious software, their machine is also compromised, and spreads the infection still further. A crisis meeting has decided that the chat software must be modified to block this "worm" behavior.

As manager of this project, how will you address the situation mentioned above?

(15 mark)

b. Explain about open source development and open source licensing.

(10 mark)