RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES

B.Sc. in Information Technology
Second Year - Semester I Examination – June/ July 2022

ICT 2402 - SOFTWARE ENGINEERING

Time: Three (03) hours

INSTRUCTIONS TO CANDIDATES

- This paper consists of **FIVE (05)** questions on **THREE (03)** pages including this page.

- This is a closed book examination.

- Mobile phones or any other communication devices are not permitted.

1. a) Briefly describe how the **portability** of a software affects the maintenance cost.

   (04 marks)

   b) Explain how the programming language selection decision (when developing a software) will affect the **Legacy Challenge**.

   (04 marks)

   c) Briefly describe how **CASE tools** help to achieve **dependability** in software.

   (04 marks)

   d) Briefly describe why heterogeneity is challenge with regard to software development.

   (02 marks)

   e) Describe why requirements will be compromised when using COTS components.

   (02 marks)

   f) Briefly describe why it is better to use cowboy coding to test a programming idea instead of using the waterfall model test it.

   (04 marks)

2. a) Describe how documentation is related with the visibility of a software development project.

   (04 marks)

   b) It is said that "Requirements should be both complete and consistent". Explain how the requirement **completeness** and **consistency** affects the project schedule.

   (04 marks)

   c) Briefly describe **requirements traceability** affects the legal issues originating from the project contract.

   (04 marks)

   d) Describe the two (02) domain requirement problems.

   (04 marks)

   e) Briefly describe how lack of clarity with requirements will affect the **requirements traceability**.

   (04 marks)

3. a) Describe how organizational and political factors will affect the requirement analysis.

   (04 marks)

   b) Describe how the requirements adaptability is connected with component cohesion levels.

   (04 marks)

   c) "Requirements are inevitably incomplete and inconsistent".
   Explain two (02) reasons to justify the above statement.

   (04 marks)

   d) Describe the situations in which **Preventive maintenance** will be applied.   (04 marks)

   e) Describe how loosely coupling will help with maintenance.   (04 marks)

4. a) Following strict coding styles and documenting guidelines will increase the short-term cost while reducing the long-term costs. Explain how this happens. (04 marks)

    b) Describe why software needs to be tested to see how it fails. (04 marks)

    c) Briefly describe two (02) reasons why the User Interface design is critical for the success of a software. (04 marks)

    d) Briefly describe what is known as **dead code.** (02 marks)

    e) Briefly describe the effects of **memory leak** in a program. (02 marks)

    f) Explain what is shown in the V-model of development. (02 marks)

    g) According to the V-model of development, name the project documentation which is used as basis for the testing plans. (02 marks)

5. a) In a Use case diagram, what would be the impact of missing certain use cases. (03 marks)

    b) Describe how path testing is conducted. (03 marks)

    c) Briefly how risk analysis step is conducted. (02 marks)

    d) With regard to maintenance cost factors, describe the reasons that affects the team stability. (04 marks)

    e) Describe two (02) UI design principles. (04 marks)

    f) Explain the difference between functional and non-functional requirements. (04 marks)

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