

University of Ruhuna- Faculty of Technology
Bachelor of Information and Communication Technology Honours Degree
Level 3 (Semester II) Examination, Oct/Nov 2022
Academic year 2020/2021

Course Unit: ICT3262- Software Verification & Quality Assurance (Written) Duration: 2 hours

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Answer all four(04) questions.

1.
 - a. Write *four (04)* objectives for conducting software verification.
 - b. Illustrate the steps you should perform in an audit for a software product in a software development organization.
 - c. Distinguish software verification and validation.
 - d. Assume that your company needs you to plan software verification and validation process for the upcoming project. Select and briefly explain *two (02)* verification and *two (02)* validation activities you are going to follow.

2.
 - a. The test plan serves as a blueprint to conduct software testing activities as a defined process. Point out the purpose of creating a test plan.
 - b. Briefly explain *four (04)* types of non-functional testing.
 - c. Use Table 1 to list and calculate *four (04)* types of metrics.

Testing Metric	Data retrieved during test case development and execution
No. of requirements	8
Avg. no. of test cases written per requirement	15
Total number of test cases executed	90
No. of test cases passed	75
No. of test cases failed	9
No. of test cases blocked	6
No. of test cases not executed	30

Table 1 Basic Test Metrics data

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- d. As a member of the quality assurance team, you need to prepare a software defect report for a current project. Describe the content you plan to include in the report.

3.

- a. Code refactoring changes the structure, not the behaviour. Provide *four (04)* reasons why we need code refactoring?
- b. Briefly explain the *four (04)* stages of the Risk management process.
- c. Illustrate and briefly explain the process of Test-Driven Development.
- d. An Opportunity is an event that can have a positive impact on project objectives. Choose the most suitable response strategy and explain how you are going to assess the following opportunities.
 - i. You are not able to attempt a project hosted on cloud server due to a lack of expertise in cloud computing technologies, but your management wants this project to expand their portfolio.
 - ii. Imagine you will complete your project in three months and the government is about to float a similar project in two months. You can try for a new project if you complete your project in two months.

4.

- a. Explain *two (02)* methods that can be used to handle defects with an example.
- b. Briefly explain the purpose of Process and Product Quality Assurance.
- c. Different people have different views and expectations based on their roles and responsibilities. Compare the view of a consumer and the producer on a product.
- d. Quality engineering is the discipline of engineering concerned with the principles and practice of product and service quality assurance and control. Explain how you can apply quality engineering to your project using the three main stages of QE.

*****END OF THE PAPER*****