UNIVERSITY OF COLOMBO, SRI LANKA

FACULTY OF TECHNOLOGY

LEVEL II EXAMINATION IN TECHNOLOGY - SEMESTER I - 2021

IC 2204 – Software Engineering

Two (02) hours

<u>Answer all the questions</u>

No. of pages: 03

<u>**Important Instructions to Candidates**</u>

- If a page or part of this question paper is not printed, please inform the supervisor immediately.
- Enter your index number on all pages of the answer script.
- Write the answers to the questions in the space provided in the question paper.
- Electronic devices capable of storing and retrieving text, including electronic dictionaries and mobile phones are not allowed.

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Answer all the questions.

1) a) Describe three (03) development principles that can be applied to any software, regardless of the software process used. (6 marks)

   b) Explain two (02) responsibilities of a software professional along with the potential impacts of breaching them. (4 marks)

   c) Suppose a start-up company consists of only four staff members for a software project in online shopping. They are namely a project manager, two software engineers and a graphic designer.

      i. Describe the importance of conducting a feasibility study in their software project. What factors should they consider? (5 marks)

      ii. Is there a suitable team member to conduct the requirement analysis for the project? If not, introduce a role you think is the most suitable. Justify your answer explaining the key responsibilities of this team member. (4 marks)

      iii. How can requirements be validated? If there are errors in the requirements validation stage, what are the suitable actions that can be taken? Upon any corrections, what is the deliverable that can be obtained at this stage? (6 marks)

2) a) What is the importance of using prototypes in a spiral model? What type of prototype is the most suitable to implement in a spiral model? Justify your answer. (6 marks)

   b) What is the purpose of observing the change management in Rational Unified Process? (4 marks)

   c) Incremental development is appropriate for an e-commerce software. Discuss its suitability for a disaster monitoring system. (5 marks)

   d) i. Describe the "customer involvement" in Extreme Programming. How would you compare this with the Waterfall model? (5 marks)

      ii. Suppose you are a software developer in a team where XP is used as the development model. Discuss the responsibilities of your role in the team. (5 marks)

3) a) A software company has undertaken a project to develop a web-based (8 marks)
system which renders services to plan large-scale weddings, conferences and
parties. They expect to extend the system later, for online payments. Assume
that the usual activities related to organizing an event such as booking a date,
time, handling guest invitations, etc are implemented through the system.
You are asked to model the activity diagram for this event planning system.
You may include any relevant activities you think is suitable, apart from the
ones mentioned above.

b) When a customer uses the system developed in (a) to plan an event, he/she (8 marks)
chooses the date, time duration and checks the availability. Afterwards, the
number of guests and the venue is selected from the available options.
Additional notes on food, beverages and deliverables for the event is
mentioned in a text box and submitted. After submission, the event is created
and an email notification is sent to the event manager. The manager reviews
the request and decides to accept or reject depending on the availability of
staff members on the requested date and time.
Draw a use case diagram for this scenario.

c) Suggest the most suitable method to gather the requirements for the above (4 marks)
system. Justify your answer.

d) Write three (03) possible risks the software company may face during the (5 marks)
project?

4) a) Explain the use of maintaining a repository for a project. (3 marks)

b) Can software systems share the same architecture? Discuss the pros and cons (4 marks)
of this method.

c) Suppose you are given a hotel reservation system to be tested. There are fifty
hotels scattered in different cities with many types of rooms and services.

    i. How would you test the reservation interface of the system, if the user (8 marks)
inputs are check-in date and time, check-out date and time, number of
nights, number of guests and any applicable discount coupon?

    ii. If this system has changing system requirements, what tests are suitable (5 marks)
to test the system? Justify your answer.

d) i. What are the reasons for bad smells in code? (3 marks)

    ii. Explain different methods to conduct a software review. (2 marks)

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