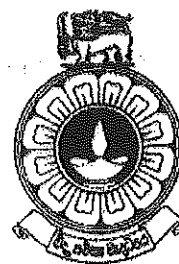


The Open University of Sri Lanka
Faculty of Natural Sciences
B.Sc./ B. Ed Degree Programme



416

Department	: Computer Science Level 04
Name of the Examination	: Final Examination
Course Title and - Code	: System Analysis and Software Engineering - CSU4302
Academic Year	: 2021/2022
Date	: 21.10.2022
Time	: 9.30 am -11.30 am
Duration	: Two hours only

General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of **(06) questions** in **(03) pages**.
3. Answer Four (4) questions only. Question 1 is compulsory and answer any three (3) questions out of the remaining.
4. Answer for each question should commence from a new page and label the diagrams correctly.
5. Involvement in any activity that is considered as an exam offense will lead to punishment
7. Use **blue or black ink** to answer the questions.
8. Clearly state your **Index Number** in your answer script

1. Question No: 1 (Total = 40 Marks)

“Software engineering is an engineering discipline that is concerned with all aspects of software production from the early stages”

1.1 Briefly explain three (3) key challenges faced in the Software Engineering field.
(9 marks)

1.2 Explain the four (4) essential attributes of a Good Software.
(12 marks)

1.3 What do you mean by a software process?
(2 Marks)

1.4 Explain the four (4) basic activities that occur one after the other in the software process.

(8 marks)

1.5 Describe three (3) different types of Software Process Models.

(9 marks)

2. Question 2 (Total = 20 Marks)

2.1 Explain the four (4) main phases in the Requirements Engineering process.

(8 Marks)

2.2 State three (3) advantages of the incremental development process over other processes.

(6 Marks)

2.3 Briefly explain functional and non-functional requirements in requirement gathering process.

(6 Marks)

3. Question 3 (Total = 20 Marks)

3.1 State two (2) structural and two (2) behavioral UML diagrams can be used when developing new systems.

(4 Marks)

3.2 Explain the importance of any two (2) UML diagrams and denote the symbols used to draw these diagrams.

(6 Marks)

3.3 Draw a UML Activity Diagram and the Swimlane Version of the Activity Diagram for the following scenario.

A consulting firm will follow the following business process when they meet a new client.

The activities are as follows:

- A **salesperson** calls the client and sets up an appointment.
- If the appointment is on-site (that is at the consulting firm's office), then the **corporate technicians** prepare a conference room for a presentation.
- If the appointment is off-site (that is at the client's office), then a **consultant** prepares a presentation on a laptop.
- The **consultant** and the **salesperson** meet with the client at the decided location and time.
- The **salesperson** follows up with a letter.
- If the meeting concludes successfully and the client gives a statement of the problem, then the consultant creates a **proposal** and sends it to the client.

(10 Marks)

4. Question No: 4 (Total = 20 Marks)

4.1 Explain the four (4) principles of Agile Method.

(8 Marks)

4.2 “Reuse-based software engineering is a comparable software engineering strategy where the development process is geared to reusing existing software” Do you agree with this concept? Give Reasons.

Explain three (3) different entity levels that can be reused in the Software development process.

(6 Marks)

4.3 Explain three (3) categories of Design Patterns.

(6 Marks)

5. Question No: 5 (Total = 20 Marks)

5.1 “Rapid Application Development (RAD) is an alternative to the traditional systems development life cycle”. Comment on this statement.

(6 Marks)

5.2 Briefly explain the two approaches of Rapid Application Development (RAD).

(8 Marks)

5.3 State two advantages and disadvantages of using Rapid Application Development (RAD).

(6 Marks)

6. Question No: 6 (Total = 20 Marks)

6.1 What do you mean by software testing?

(2 Marks)

6.2 State two main goals of the Software Testing process.

(4 Marks)

6.3 Explain two fundamental testing activities in a software testing process.

(4 Marks)

6.4 Briefly explain the three (3) main activities integrated in the software quality management process.

(6 Marks)

6.5 Explain how CASE (Computer Aided Software Engineering) technology can negatively affect adoption in organizations.

(4 Marks)

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