**Code No: 155DB** **R18**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B. Tech III Year I Semester Examinations, March - 2024**

**SOFTWARE ENGINEERING**

**(Common to CSE, IT, ECM, ITE, AI&DS, CSD)**

**Time: 3 Hours** **Max. Marks: 75**

**Note:** i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

## PART – A

**(25 Marks)**

| | | |
|---|---|---|
| 1.a) | What do you mean by software myths? | [2] |
| b) | What is process assessment, and how is it conducted in software engineering? | [3] |
| c) | What are structured methods in the context of system modelling? | [2] |
| d) | How do requirements management tools and techniques facilitate the organization and tracking of requirements throughout the software development lifecycle? | [3] |
| e) | How does UML facilitate the representation and visualization of software architectures? | [2] |
| f) | How do class diagrams depict relationships and interactions among classes in a system? | [3] |
| g) | What do you understand by equivalence partitioning in software testing? | [2] |
| h) | Differentiate between validation testing and verification testing in software engineering. | [3] |
| i) | Define software reliability. | [2] |
| j) | Define software quality assurance and its role in software development processes. | [3] |

## PART – B

**(50 Marks)**

| | | |
|---|---|---|
| 2.a) | Discuss incremental process models and provide examples of their application in real-world projects. | |
| b) | Compare and contrast personal and team process models in software development. | [5+5] |

**OR**

| | | |
|---|---|---|
| 3.a) | What are evolutionary process models, and how do they differ from traditional approaches like the waterfall model? | |
| b) | Explain how process models facilitate collaboration and communication among project stakeholders. | [5+5] |
| 4.a) | Define functional and non-functional requirements in software engineering. Provide examples of each. | |
| b) | Write a software requirement specification document for the Android to-do list application. | [5+5] |

**OR**

5.a) What role does validation play in ensuring the correctness and completeness of software requirements? Discuss different validation techniques.

b) What is a feasibility study, and why is it conducted during the requirements engineering process? Discuss the key factors considered in a feasibility study. [5+5]

6.a) Explain the design process in software engineering. What are the key phases involved, and how do they contribute to the overall development lifecycle?

b) Discuss the role of software architects in defining and implementing architectural designs. [5+5]

**OR**

7.a) Describe the design model in software engineering. How does it serve as a blueprint for implementing and maintaining software systems?

b) Describe basic structural modelling techniques in UML. [5+5]

8.a) Compare and contrast black-box and white-box testing techniques. Provide examples of scenarios where each technique would be most appropriate.

b) Evaluate the effectiveness of using cyclomatic complexity as a metric for measuring the complexity of source code. [5+5]

**OR**

9.a) Describe common debugging techniques and strategies for identifying and fixing software defects efficiently.

b) Define software quality metrics and explain why they are essential for assessing the overall quality of software products. [5+5]

10.a) Define software measurement and explain its importance in the software development process.

b) Discuss the differences between reactive and proactive risk management strategies. Provide examples of situations where each strategy would be most appropriate. [5+5]

**OR**

11.a) Explain the concept of Risk Mitigation, Monitoring, and Management (RMMM) in software engineering.

b) Discuss the benefits of conducting FTRs and the roles of stakeholders involved. [5+5]

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