

R22

Code No: 183CD

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech II Year I Semester Examinations, December - 2024 /January - 2025

SOFTWARE ENGINEERING

(Common to CSE (AI&ML), CSE (IOT), AI&ML)

Time: 3 Hours

Max. Marks: 60

Note: This question paper contains two parts A and B.

i) **Part- A** for 10 marks, ii) **Part - B** for 50 marks.

- Part-A is a compulsory question which consists of ten sub-questions from all units carrying equal marks.
- Part-B consists of **ten questions** (numbered from 2 to 11) **carrying 10 marks each**. From each unit, there are two questions and the student should answer one of them. Hence, the student should answer five questions from Part-B.

PART- A

(10 Marks)

- 1.a) What is the role of software in today's world? [1]
- b) Why is software considered "changing in nature"? [1]
- c) Define the term "requirements elicitation". [1]
- d) What is the main objective of requirements analysis? [1]
- e) Define the purpose of a collaboration diagram. [1]
- f) What is the main difference between architectural styles and architectural patterns? [1]
- g) What is the importance of software quality metrics? [1]
- h) What is system testing? [1]
- i) What is a software risk? [1]
- j) How would you define software reliability? [1]

PART- B

(50 Marks)

- 2.a) Differentiate between commonly held software myths and the reality of software development practices.
- b) Outline the key components of the CMMI and its role in improving software processes. [5+5]

OR

- 3.a) Illustrate the layers of software engineering as a layered technology and how they interact to support effective software development.
 - b) Compare the traditional waterfall approach with Agile in terms of handling requirements changes and customer collaboration. [5+5]
- 4.a) Demonstrate the concept of system and user requirements in detail.
 - b) Evaluate the role of interface specifications in enabling interoperability between software modules. [6+4]

OR

- 5.a) Discuss how feasibility studies are conducted, highlighting the factors analyzed to determine project viability.
- b) Explain why requirements management is critical in software development. [5+5]

QA QA QA QA QA QA QA G

- 6.a) Describe the stages of the design process and analyze how each stage contributes to the overall design quality.
- b) Illustrate the concept of software architecture and evaluate its importance in the design of complex software systems. [5+5]

QA QA QA QA QA QA QA G

- 7. Explain the conceptual model of the UML in detail. [10]

- 8.a) Explain the strategic approach to software testing and how it contributes to software quality.
- b) Compare and contrast unit testing, integration testing, and system testing. [5+5]

QA QA QA QA QA QA QA G

- 9. Explain the following. [5+5]
 - a) White-box testing,
 - b) Metrics for software process and products.

- 10.a) Differentiate between reactive and proactive risk management strategies.
- b) Describe the various types of software risks. [5+5]

QA QA QA QA QA QA QA G

- 11.a) Explain the role of software reviews in ensuring the quality of a software product.
- b) Outline the components of RMMM and describe how it supports risk management in software projects. [5+5]

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QA QA QA QA QA QA QA G