

BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT

(Autonomous Institute under Visvesvaraya Technological University, Belagavi)

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Course Code

22CS/AI/CA/CD51

Fifth Semester B.E. Degree Examinations, February 2025

SOFTWARE ENGINEERING AND PROJECT MANAGEMENT

Duration: 3 hrs

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Missing data, if any, may be suitably assumed

<u>Q. No</u>	<u>Question</u>	<u>Marks</u>	<u>(RBTL:CO:PI)</u>
<u>Module-1</u>			
1.	a. Explain briefly the characteristics of the software.	06	(2 : 1 : 1.3.1)
	b. With the help of a diagram, describe the stages of the Boehm's spiral model and its significance in software development.	10	(3 : 1 : 2.3.1)
	c. Discuss pair programming with its advantages.	04	(2 : 1 : 2.2.1)
(OR)			
2.	a. Discuss any four software engineering principles.	04	(2 : 1 : 1.3.1)
	b. Describe and illustrate the four basic process activities in software engineering with diagrams.	10	(3 : 1 : 1.4.1)
	c. Discuss the prototype model used in SDLC.	06	(3 : 1 : 1.4.1)
<u>Module-2</u>			
3.	a. Discuss the steps involved in developing use cases and explain any three forms of use cases with the help of the safe home project example.	10	(3 : 2 : 2.1.1)
	b. Describe briefly about data objects and its tabular representation with example.	04	(2 : 2 : 2.3.2)
	c. Discuss the various requirements of eliciting methods.	06	(2 : 2 : 2.3.2)
(OR)			
4.	a. Explain the guidelines, goals, and steps for effective requirements gathering in a project.	06	(3 : 2 : 3.1.2)
	b. Provide an overview of analysis patterns and discuss their benefits in requirements modelling.	04	(2 : 2 : 3.2.3)
	c. Create a swim lane diagram for the ACS-DCV function. Explain what a swim lane diagram is, how the actors and processes interact in the diagram and describe each actor's role in the process.	10	(3 : 2 : 3.2.2)
<u>Module-3</u>			
5.	a. Explain system modeling and describe the various perspectives used in the process.	05	(2 : 3 : 1.4.1)
	b. Develop an event-driven model for a microwave oven and represent it using a state diagram.	10	(3 : 3 : 2.3.1)

Note: (RBTL - Revised Bloom's Taxonomy Level: CO - Course Outcome: PI- Performance Indicator)

- c. Explain how Krutchen's 4+1 view model used to design a software system. **05** (2 :3 : 3.1.6)

(OR)

6. a. For the MHC-PMS system, explain the following concepts with examples: **06** (3 :3 : 2.1.1)
 (i) Classes and associations (ii) Generalization (iii) Aggregation
 b. Describe the Model-View-Controller (MVC) pattern and demonstrate its use in web-based applications. **10** (3 :3 : 3.2.1)
 c. Discuss the role and importance of Executable UML (xUML) in Model-Driven Engineering (MDE). **04** (2 :3 : 5.1.2)

Module-4

7. a. List the activities of Object-Oriented (OO) design and explain the system context for a weather station. **06** (2 :4 : 3.2.2)
 b. Discuss the four essential elements of design patterns. **04** (2 :4 : 1.3.1)
 c. Explain the test-driven development process using a diagram and discuss its benefits. **10** (3 :4 : 1.4.1)

(OR)

8. a. Draw and interpret a sequence diagram for data collection in the weather station system. **08** (3 :4 : 2.2.1)
 b. Discuss the advantages of software inspection over testing. **04** (2 :4 : 2.3.1)
 c. Describe different types of user testing with appropriate diagrams. **08** (3 :4 : 2.2.1)

Module-5

9. a. Explain briefly about the project and its characteristics. **06** (3 :5 : 1.1.1)
 b. Compare the concepts of plan, method, and methodology in software project management and provide example. **06** (3 :5 : 2.3.1)
 c. Illustrate the concept of management control in software project management with a neat diagram. **08** (3 :5 : 4.1.2)

(OR)

10. a. Explain the key activities and processes involved in software project management and illustrate them with relevant diagrams. **08** (3 :5 : 1.3.1)
 b. Discuss the different ways in which software projects can be categorized with examples. **08** (3 :5 : 2.1.1)
 c. Compare traditional versus modern project management practices. **04** (3 :5 : 2.1.1)

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