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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

June 2025 Semester End Main Examinations

Programme: B.E. **Semester: IV**
Branch: Information Science and Engineering **Duration: 3 hrs.**
Course Code: 23IS4PCSEG **Max Marks: 100**
Course: Software Engineering

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

			UNIT - I	CO	PO	Marks
1	a)		Describe the essential attributes of a good software.	CO1	PO8	4
	b)		The Code of Ethics contains principles related to the behavior of decisions made by professional software engineers. Discuss briefly the principles with appropriate example.	CO1	PO8	8
	c)		The development team approaches a project where the software is built and delivered in stages, with each stage adding new functionality and refining existing features over time. Provide the details with a neat diagram.	CO1	PO9	8
			OR			
2	a)		Plan-driven processes are procedures where all of the development activities are planned in advance and progress is measured against this plan. Explicate all phases of this process with a neat diagram.	CO1	PO8	6
	b)		Software engineering methods and tools used depend on the type of application being developed. Elucidate different types of applications with appropriate examples.	CO1	PO8	6
	c)		Explicate the following software activities in detail with neat diagrams. i. Software design and implementation ii. Software evolution	CO1	PO8	8
			UNIT - II			
3	a)		List and explain the principles of agile methods.	CO2	PO1	6
	b)		"The Extreme Programming (XP) process is used to produce an increment of the system that is being developed". Justify the statement. Explain the XP release cycle with a neat diagram.	CO2	PO1	8
	c)		Consider 'prescribing medication' story with a short description of a scenario for prescribing medication for a patient. Based on this generate three task cards and describe each of them.	CO1	PO8	6

			OR			
	4	a)	The philosophy behind agile methods is reflected in the Agile Manifesto that was agreed on by many of the leading developers of these methods. Mention Agile Manifesto values and their contributions to project success.	***CO2***	***PO1***	**4**
		b)	Extreme programming involves a number of practices which reflect the principles of agile methods. In this context, list and explain all practices with an example.	***CO2***	***PO1***	**10**
		c)	Scrum is a management framework that teams use to self-organize tasks and work towards a common goal. Explain three phases of this process with a neat diagram.	***CO1***	***PO9***	**6**
			UNIT - III			
	5	a)	List metrics for specifying non-functional requirements and their measures.	***CO1***	***PO11***	**6**
		b)	Explain the typical structure of a Software Requirement Specification (SRS) document in detail, including the purpose of each key section. How does this structure ensure clarity and completeness in software development?	***CO1***	***PO8***	**10**
		c)	During the requirements validation process, different types of checks should be carried out on the requirements in the requirements document. Mention these checks and brief on them.	***CO1***	***PO8***	**4**
			OR			
	6	a)	User Requirement definition from a mental health care patient management system (MHC-PMS) is given. Show how the given user requirement can be expanded into several system requirements. **User requirement definition**: "The MHC-PMS shall generate monthly management reports showing the cost of drugs prescribed by each clinic during that month."	***CO1***	***PO11***	**6**
		b)	Describe requirement specification with an example. List and explain the ways of writing a system requirements specification.	***CO1***	***PO8***	**8**
		c)	Elucidate generic activities common to all processes in Requirements engineering process with a spiral view diagram.	***CO3***	***PO2***	**6**
			UNIT - IV			
	7	a)	Design and documentation needs to present multiple views of the software architecture. In this regard, describe 4 + 1 view model of software architecture with a neat diagram.	***CO3***	***PO2***	**8**
		b)	The majority of systems that use large amounts of data are organized around a shared database or repository. In this context, explain Repository architecture pattern with a neat diagram of an IDE example.	***CO3***	***PO2***	**8**
		c)	Provide a diagram of pipe and filter compiler architecture and brief about it.	***CO3***	***PO2***	**4**
			OR			

	8	a)	The idea of architectural patterns is a way of presenting, sharing, and reusing knowledge about software systems. With this perspective, provide the details about Model-View-Controller (MVC) pattern along with a neat diagram.	***CO3***	***PO2***	**8**
		b)	Transaction processing systems is an application architecture designed to process user requests for information from a database. In regard to this, explicate software architecture of an ATM system with a neat diagram.	***CO3***	***PO2***	**8**
		c)	Brief about Client–Server architectural pattern with an example.	***CO3***	***PO2***	**4**
			UNIT - V			
	9	a)	Risk management involves anticipating risks that might affect the project schedule. Based on this, provide three categories of risks and explain with suitable examples.	***CO1***	***PO11***	**8**
		b)	Motivation means organizing the work and the working environment to encourage people to work as effectively as possible. Provide Maslow's need-based theory with a neat diagram.	***CO1***	***PO9***	**6**
		c)	Describe the factors that affect the software pricing to discover the overall cost of the development.	***CO1***	***PO11***	**6**
			OR			
	10	a)	The risk management process is an iterative process that continues throughout the project. With this, outline of the process of risk management with a neat diagram and appropriate examples for each step in the process.	***CO1***	***PO11***	**8**
		b)	List and explain the factors that influence good communications which are essential for effective group working.	***CO1***	***PO9***	**6**
		c)	With a neat diagram, elucidate project scheduling process.	***CO1***	***PO11***	**6**

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