



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY::PUTTUR
(AUTONOMOUS)**

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QUESTION BANK (DESCRIPTIVE)



Subject with Code : DevOps & Agile Programming(25MC9126)

Year & Sem: II-MCA & I-Sem

Course & Branch: MCA

Regulation: R25

UNIT - I

1		Explain the core values and principles of Extreme Programming (XP) in improving software development process.	[L2][CO1][12M]
2	a)	What is meant by 'Eliminate Waste' in Agile methodology? List different types of waste in software development.	[L1][CO1][06M]
	b)	Describe the concept of 'Energized Work' and 'Informative Workspace' in XP practices.	[L2][CO1][06M]
3		Define Pair Programming in XP. Outline its advantages, styles.	[L2][CO2][12M]
4	a)	Explain the purpose and structure of Stand-Up Meetings in Agile.	[L2][CO2][06M]
	b)	What is Root-Cause Analysis? Illustrate fish bone technique.	[L3][CO3][06M]
5	a)	What is Agile Retrospective? Identify the steps involved in conducting an effective retrospective.	[L3][CO3][06M]
	b)	Illustrate the format of Agile Retrospective.	[L3][CO3][06M]
6		Analyse the use of coding standards and guidelines in Agile Development and its importance in improving the quality.	[L4][CO2][12M]
7	a)	What is XP Thinking? Demonstrate the mental models required for successful XP adoption.	[L2][CO2][06M]
	b)	Deduce the process of Reporting in Agile projects.	[L4][CO2][06M]
8	a)	Explain 'Collaborating' as an XP practice, its principles and benefits.	[L5][CO2][06M]
	b)	What is the purpose of Root-Cause Analysis in Agile? Examine any two tools used for conducting root-cause analysis.	[L3][CO3][06M]
9	a)	Describe the XP values and rules that contribute to successful Agile project delivery.	[L5][CO1][06M]
	b)	What are the 12 extreme programming practices?	[L1][CO1][06M]
10	a)	Discover the significance and best practices of Collective Code Ownership.	[L4][CO2][06M]
	b)	Deduce the importance of Stand-Up Meetings in XP.	[L4][CO2][06M]

UNIT - II

1		Explain the concept of Continuous Integration (CI) in Agile. Discuss its benefits, key practices,	[L2][CO2][12M]
2		Discuss Version Control as an Agile practice. Explain how version control systems support collaboration, code management, and continuous integration in Agile teams.	[L2][CO2][12M]
3	a)	What is Vision in Agile Planning? How does a product vision guide the team throughout the project lifecycle?	[L5][CO2][06M]
	b)	Define Risk Management. How are risks identified, prioritized, and mitigated in an Agile team?	[L1][CO2][06M]
4	a)	Demonstrate the concept of User Stories in Agile. What are the characteristics of a good user story (INVEST criteria)?	[L2][CO2][06M]
	b)	Illustrate the Estimating process in Agile. Compare Planning Poker with T-shirt sizing as estimation techniques.	[L3][CO2][06M]
5		Analyze the importance of Documentation in Agile and the elements of Agile Documentation.	[L4][CO2][12M]
6	a)	What is a Release Plan? Examine the steps for creating a release plan.	[L3][CO2][06M]
	b)	List the characteristics and importance of good User Stories.	[L1][CO2][06M]
7		Explain Continuous Integration in detail. What are the key components of a CI pipeline?	[L2][CO2][12M]
8	a)	Differentiate Iteration Planning and Release Planning in Agile.	[L4][CO2][06M]
	b)	Illustrate the process of Story Estimation using Planning Poker and its benefits.	[L3][CO2][06M]
9	a)	Identify the types of risks commonly encountered in Agile projects.	[L3][CO2][06M]
	b)	Describe in detail Documentation in Agile.	[L2][CO2][06M]
10	a)	What are Stories in Agile? Differentiate between User Stories, Technical Stories, and Bug Stories.	[L4][CO2][06M]
	b)	Deduce the importance of the 'No Bugs' principle in Agile.	[L4][CO2][06M]

UNIT - III

1	a)	What is Refactoring in Agile? Explain common refactoring techniques with examples.	[L2][CO4][06M]
	b)	Describe the process of Incremental Requirements Gathering.	[L2][CO4][06M]
2	a)	Differentiate between customer tests and unit tests in agile?	[L2][CO4][06M]
	b)	Discuss the concept of Spike Solutions in Agile. When should a spike be used?	[L2][CO3][06M]
3	a)	What is meant by Incremental Requirements in Agile? How does the requirement changes are managed across iterations?	[L2][CO4][06M]
	b)	Describe Performance Optimization in Agile. Discuss metrics and tools are used to measure and improve system performance?	[L2][CO3][06M]
4	a)	What is a Spike Solution? Describe the process of conducting a spike and how its results influence iteration planning.	[L1][CO4][06M]
	b)	Describe the Red-Green-Refactor process in Test-Driven Development (TDD).	[L2][CO4][06M]
5	a)	Define Incremental Design. Distinguish between traditional architectural design and incremental design.	[L4][CO4][06M]
	b)	Identify the relationship between TDD and Refactoring.	[L1][CO4][06M]
6	a)	What are the benefits and challenges of Test-Driven Development in large-scale Agile projects?	[L1][CO4][06M]
	b)	How are Customer Tests written? Explain the Given-When-Then format with an example from an e-commerce domain.	[L2][CO4][06M]
7	a)	What is the significance of Incremental Architecture in Agile?	[L1][CO4][06M]
	b)	Explain Performance Optimization as an iterative activity in Agile. What is the 'optimize last' principle?	[L2][CO3][06M]
8	a)	How does Refactoring support Incremental Design? Analyze with an example how a design evolves through refactoring.	[L4][CO4][06M]
	b)	Describe the purpose of Customer Tests in verifying Acceptance Criteria. Discuss the integration of customer tests into the CI pipeline.	[L2][CO4][06M]
9	a)	What is Incremental Design and Architecture? How does it help teams respond to changing requirements without major rework?	[L1][CO4][06M]
	b)	Explain the concept of Technical Debt in the context of Refactoring and Incremental Design.	[L2][CO4][06M]
10	a)	What are the key differences between unit tests, integration tests, and customer acceptance tests in Agile? Give examples.	[L4][CO4][06M]
	b)	Analyze the use of spike solutions to reduce estimation uncertainty in iteration planning.	[L4][CO4][06M]

UNIT - IV

1		Explain the concept of DevOps its purpose and principles,	[L2][CO1][12M]
2	a)	Differentiate between Continuous Delivery (CD) Continuous Deployment.	[L4][CO6][06M]
	b)	Describe different application deployment strategies (blue-green, canary, rolling).	[L1][CO6][06M]
3	a)	Compare DevOps with Agile methodology.	[L4][CO1][06M]
	b)	Describe the stages of deployment pipeline in DevOps.	[L1][CO6][06M]
4	a)	Examine the best practices of Continuous Integration in DevOps.	[L4][CO2][06M]
	b)	List the key challenges faced by organizations when adopting DevOps. Suggest strategies to overcome them.	[L1][CO1][06M]
5	a)	Describe the Application Deployment process in DevOps.	[L2][CO3][06M]
	b)	Inspect different Application deployment strategies in DevOps.	[L4][CO6][06M]
6		Discuss in detail the stages of a complete CI/CD pipeline,	[L2][CO1][12M]
7	a)	What is the significance of automated testing in a CI/CD pipeline? Describe the types of tests run at each stage.	[L2][CO4][06M]
	b)	Distinguish between Continuous Delivery vs Continuous Deployment.	[L5][CO1][06M]
8	a)	Describe the tools used for Application Deployment automation in DevOps. (Jenkins, GitLab CI, etc.)	[L2][CO4][06M]
	b)	What is MVP thinking in a DevOps context? Releasing an MVP accelerate feedback and reduce waste. Justify?	[L5][CO5][06M]
9	a)	What is Continuous Delivery? List any five principles of continuous delivery and explain each briefly.	[L2][CO4][06M]
	b)	Describe the relationship between Agile sprints and DevOps deployment pipelines.	[L2][CO2][06M]
10	a)	What are the common tools used in a DevOps CI/CD pipeline? Categorize them by function (build, test, deploy, monitor).	[L4][CO4][06M]
	b)	Explain the concept of 'shift-left testing' in DevOps. How does it help in detecting defects early in the SDLC?	[L2][CO4][06M]

UNIT - V

1		Explain the CAMS framework in DevOps. Describe each component in detail.	[L2][CO1][12M]
2	a)	What is Infrastructure Automation in DevOps? Describe the benefits of using tools like Ansible, Terraform, or Chef.	[L2][CO1][06M]
	b)	Discuss the importance of Measurement in the CAMS model. What key metrics are tracked in a DevOps environment?	[L2][CO2][06M]
3		Analyse how Automation in DevOps (CAMS) reduces manual errors and speeds up delivery.	[L4][CO2][12M]
4	a)	Describe Configuration Management in DevOps and the importance of tools like Ansible or Puppet.	[L2][CO3][06M]
	b)	Explain TDD in the context of DevOps automation. Assess the support of test automation in CI/CD pipeline?	[L5][CO4][06M]
5		Explain the concept of Infrastructure Automation in DevOps, its benefits and tools (Terraform, Ansible, Chef, Puppet),	[L2][CO1][12M]
6	a)	Differentiate between Root Cause Analysis (RCA) and Blamelessness in DevOps.	[L4][CO2][06M]
	b)	What are the Four Key Metrics of DevOps (DORA metrics)? Explain each.	[L2][CO1][06M]
7	a)	Distinguish between mutable and immutable infrastructure in DevOps.	[L4][CO1][06M]
	b)	Explain the following a) blameless post-mortems b) retrospectives c) shared metrics dashboards	[L2][CO3][06M]
8	a)	What is DevOps Measurement? List and Explain any five key metrics.	[L2][CO5][06M]
	b)	Examine the 'Culture' pillar of CAMS. What behavior and mindset define a healthy DevOps culture?	[L3][CO1][06M]
9	a)	Assess the importance of Blameless culture in DevOps in responding to incidents.	[L5][CO5][06M]
	b)	Illustrate the role of Configuration Management tools in achieving Infrastructure Automation. Give examples of use cases.	[L3][CO4][06M]
10	a)	Discuss in detail Root Cause Analysis in DevOps.	[L2][CO5][06M]
	b)	Describe the '5 Whys' and Fishbone Diagram techniques with examples.	[L1][CO6][06M]

Prepared by:

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