Kongu Engineering College

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22CSC51 – Agile Methodologies

Question Bank

Unit 1

Part A

1. Define Software
2. List the software application domains / types of software.
3. State Software Engineering
4. Draw the layered architecture of software engineering
5. Define software process
6. List the generic process framework activities
7. Draw the generic process model
8. Draw the different kinds of process flows
9. List the advantages and disadvantages of waterfall model
10. When will you choose incremental software development model
11. Customer is not aware of the actual requirements. Suggest a suitable software model and justify
12. A new system has to be built which involves higher amount of risk. Suggest and justify the suitable software development model
13. Indicate the requirements engineering processes
14. Identify the types of feasibility study
15. Recall the requirements elicitation techniques
16. What are the different methods of specifying the requirements
17. Compare functional and non functional requirements
18. List the requirements engineering tasks
19. State the use of CRC card
20. Draw CRC card for Home safety system
21. Differentiate between aggregation and composition
22. Compare generalization and specialization
23. List the types of associations in class diagram
24. List the components of use case diagram
25. Indicate the FURPS quality attributes
26. What are the goals of a good software design?
27. Represent the design concepts

Part B

1. Outline the generic process framework activities with a neat sketch
2. Brief about the waterfall model in software development with its advantages and disadvantages
3. A team is working on a government project with clearly defined requirements and no scope for changes once the project starts. Suggest and explain a suitable software

development model for this project. What are the challenges of implementing the suggested model?

4. You are developing a customer management system where the core functionalities need to be delivered first, but additional features can be added over time. Suggest and explain the suitable software development model for this project. How would you prioritize which functionalities to develop in the initial increments?
5. A team is tasked with developing a mission-critical system where risk management is essential, and the project requirements are likely to evolve. How would you approach risk analysis in the early phases of the project? If a high-risk element is identified, what steps would you take to mitigate this risk in the Spiral model?
6. You are developing an innovative mobile application with undefined and evolving user requirements. How would you involve end-users in the prototyping process to ensure their needs are met? If the prototype reveals a significant misunderstanding of the requirements, how would you address this in subsequent iterations?
7. A team is working on a large-scale project where different modules can be developed simultaneously. Suggest and explain a suitable software development model for this project
8. Summarize the evolutionary software development models with neat sketch
9. Explain the incremental model with its merits and demerits
10. Outline the requirements engineering process with suitable diagram
11. Describe the requirements engineering tasks in detail
12. Draw UML and Class diagram for an ATM system
13. Draw Activity and Collaboration diagram for a student management system
14. Exemplify the design concepts in detail.

Unit 2

Part A

1. Define Agile manifesto
2. List the core values of agile
3. Indicate the artifacts of SCRUM
4. Identify the values of SCRUM
5. List the different roles of person
6. Compare Product backlog and sprint backlog
7. What do you mean by sprint?
8. Write a user story for bank application from banker’s perspective
9. List the three C’s of user stories
10. Give the checklist that a good user story should fulfill.
11. Define Story Points
12. Recall Velocity
13. An agile team has completed 40 story points in 2 sprints. Calculate the average velocity.
14. What is the duration for daily scrum meetings, Sprint planning, Sprint Review and Sprint Retrospective

Part B

1. Outline the 12 principles of agile methodologies.
2. With a neat sketch , explain the SCRUM process
3. Describe the SCRUM events
4. Describe about user stories and conditions of satisfaction in detail.
5. Illustrate the concept of burn down charts to track the project progress whether it is in low risk, high risk or no risk.
6. Your agile team is working on a project with a total of 100 story points to complete. After two sprints, you have the following progress:

- **Sprint 1:**
  - 30 story points completed
- **Sprint 2:**
  - 20 story points completed

Using the data from Sprints 1 and 2, create a burn-down chart that tracks the remaining story points for each risk category over time. How can analyzing this chart help you identify potential bottlenecks and improve the estimation process for future sprints?

Unit 3

Part A

1. Define XP
2. List the goals of XP
3. List the XP variables
4. Draw the relationship between XP variables
5. What are the XP values
6. Indicate the steps in Test Driven Development
7. What do you mean by refactoring
8. State the XP roles
9. Identify the possible moves in XP Planning
10. Draw the feedback loops
11. List the advantages and disadvantages of XP
12. Recall Lean and Lean Thinking
13. List the Lean values
14. What are the seven lean wastes
15. Indicate the Lean Principles
16. Identify the lean tools
17. Represent the value stream map
18. What are the three wastes of Pull system
19. List the Kanban principles
20. Draw a kanban board
21. What are the components of a kanban board
22. Compare Kanban and Scrum

Part B

1. Outline the XP practices in detail
2. Explain the XP process with a neat sketch
3. Describe in detail about the seven lean values and seven lean wastes
4. Illustrate the Value stream map and WIP area chart
5. Outline the Kanban Values and Kanban Practices in detail.