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| **Course: Agile Software Engineering and DevOps** | | **Course Code: CS2004** | **Semester: IV** |
| **Time: 9:30am to 11am** | **Duration: 90 minutes** | **Date: March 14, 2025** | **Max Marks: 25** |

**Notes/ Instructions:**

1. **Answer all questions**

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| **Sl. No.** | **PART A – (MCQs) Max Marks (5)** | **Marks** | **L1-L6** | **CO** |
|  | A Scrum team completes five user stories in a sprint. However, only three meet the Definition of Done. Apply your understanding of Increment in Scrum to determine what should be included in the sprint’s Increment.  A. Only the three completed user stories  B. All five user stories since work was attempted  C. The Product Owner decides what to include  D. The unfinished stories should be marked as Done | 1 | L3 | CO2 |
|  | Apply DevOps principles to determine its primary goal in modern software development.  A. Improve hardware performance  B. Automate and streamline the application lifecycle  C. Shift all responsibilities from development to operations teams  D. Minimize the need for testing | 1 | L3 | CO4 |
|  | A Scrum team's burndown chart shows a sudden steep drop in the last two days of the sprint. Apply your understanding to determine what this indicates  A. The team completed most of their work at the last minute  B. The team maintained steady progress throughout the sprint  C. The sprint goal was reduced, removing some tasks  D. The burndown chart is incorrect and should be ignored | 1 | L2 | CO2 |
| 4. | Which of the following best describes what velocity measures in Agile Scrum?  A. The speed at which team members type code  B. The amount of work a team can complete in a sprint  C. The number of meetings held during a sprint  D. The complexity of user stories | 1 | L2 | CO2 |
| 5. | Identify key advantage of requirements traceability in software development?  A. Testing is no longer required  B. All code bugs are automatically fixed  C. Ensures all requirements are met and tested  D. Cuts the project timeline by 50% | 1 | L2 | CO3 |

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| **Sl. No.** | **PART B – Max Marks (20)** | **Marks** | **L1-L6** | **CO** |
| **6.** | **a.** A product owner requests the release of an Increment before all backlog items are completed. Apply your knowledge of Scrum to determine if this is acceptable and explain why **(2 Marks)**  **b.** A software development team is working on a mobile banking application. How can they effectively structure their backlog using Epics, Features, and User Stories to ensure better project management and delivery **(3 Marks)** | 5 | L3 | CO2 |
| **7.** | **a.** Write a sequence of Git commands to create a new repository, add files, commit changes, and push them to a remote repository **(3 Marks)**  **b.** A development team faces issues with applications running differently on various environments due to dependency conflicts. Apply your understanding of Docker to explain how it can solve this problem and ensure consistent deployment **(2 Marks)** | 5 | L3 | CO4 |
| **8.** | Consider a scenario where you have the following tasks:   |  |  |  | | --- | --- | --- | | Task | Cost of Delay | Duration | | A | 72 | 12 | | B | 160 | 40 | | C | 75 | 15 |  1. Explain Weighted Shortest Job First (WSJF) **(1 Marks)** 2. Compute the WSJF score and rank the tasks **(2 Marks)** 3. Your organization is adopting SAFe, and the leadership wants to ensure smooth execution of multiple Agile teams. Apply your understanding of Program Increment (PI) to explain how it helps in aligning teams, planning work, and delivering value effectively **(2 Mark)** | 5 | L3 | CO2 |
| **9.** | 1. Compare Regression Testing and Acceptance Testing **(3 Marks)** 2. Explain Security Testing and its significance, Give Example **(2 Marks)** | 5 | L3 | CO3 |

Course Outcomes

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| CO 1 | Evaluate the advantages and disadvantages of Agile development compared to traditional models |
| CO 2 | Assess various Agile methodologies such as Scrum, XP, Lean, and Kanban, and determine their appropriate applications |
| CO 3 | Create software requirements, design specifications, test plan and Analyze test coverage, requirements traceability for a software project |
| CO 4 | Utilize and implement various DevOps tools (e.g., Git, GitHub, Docker) in a software project |
| CO 5 | Develop a mini software project using Agile Scrum methodology, simulating its roles, meetings, processes, and artifacts |

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| **Marks Distribution** | | | | | | | | | |
| **L1** | **L2** | **L3** | **L4** | **L5** | **L6** | **CO1** | **CO2** | **CO3** | **CO4** |
| 0 | 3 | 22 | 0 | 0 | 0 | 0 | 13 | 6 | 6 |