**Birla Institute of Technology & Science, Pilani**

**Work Integrated Learning Programmes Division**

**First Semester 2024-2025**

**Mid-Semester Test**

**(EC-2 Regular)**

Course No. : SE ZG544

Course Title : Agile Software Process

Nature of Exam : Closed Book

Weightage : 35%

No. of Pages = 2

# No. of Questions = 7

Duration : 2 Hours

Date of Exam : 21/09/2024 (AN)

Note to Students:

1. Please follow all the *Instructions to Candidates* given on the cover page of the answer book.
2. All parts of a question should be answered consecutively. Each answer should start from a fresh page.
3. Assumptions made if any, should be stated clearly at the beginning of your answer.
4. Project-X: This project involves the development of a cutting-edge artificial intelligence application that will revolutionize the healthcare industry. The project is characterized by high uncertainty in terms of technology, market demands, and regulatory landscape. The client is actively involved and understands that requirements will evolve as the project progresses.

Project-Y: The company has also taken on a project to upgrade a well-established legacy system for a financial institution. The project comes with a comprehensive and unchanging set of requirements due to the rigid regulatory environment of the finance sector. The client emphasizes thorough documentation and traceability to ensure compliance with industry standards.

As an Agile consultant, recommend suitable Project life cycle methodologies for each project along with the rationale behind your choice. Highlight the key stages or phases involved in implementing the chosen methodologies for both projects. [5]

1. As per the Standish report 2015, a larger percentage of projects failed mainly due to adapting traditional waterfall approach to project development. [2+2]
2. Explain the issues involved in waterfall development model and why there was a need for project management makeover?
3. Explain the benefits of using Agile method over Waterfall method with respect to handling project risk and product adaptability?
4. As a practitioner in Agile software processes, your expertise extends beyond methodologies to encompass effective decision-making frameworks. One such framework is the Cynefin framework. Explain the Cynefin framework in the context of project management and its relevance in classifying projects or tasks. [4]
5. Explain how each of the Agile practices listed below supports the following

perspectives (A, B,C). [5]

1. Human: Cognition and social aspects
2. Organizational: managerial , cultural and process considerations
3. Technological: Practical, technical and product considerations

**Agile Practices:**

1. Whole team
2. Short releases
3. Measures
4. Customer collaboration
5. Test-driven development
6. Outline five essential techniques that Agile (XP) teams employ for ensuring high-quality product delivery. Concisely describe these methods, emphasizing their role in detecting and resolving problems. [5]

1. Your team is tasked with developing a new e-commerce platform.
2. Provide a detailed breakdown of how you would orchestrate the various Scrum ceremonies throughout a typical sprint cycle (e.g., 2 weeks). Include specific actions, roles, and objectives for each ceremony, showcasing how they contribute to the success of the project.
3. Additionally, address any potential challenges you might encounter and how you would mitigate them. [5]
4. A team spent 10 days designing a feature and 15 days coding it. The team distributed the design documents and code and had them reviewed by a few experts. The review took 40 hours because the reviewers requested clarifications back and forth. It took two days to incorporate the review. During the review, the team's productivity was 50% of the review effort. 1day= 8 working hours. [2+5]
5. Propose a process improvement step to improve the review process.
6. Assume that your process improvements resulted in a 40% reduction in review effort and 1 day reduction in review incorporation. Can you create a value stream map of this process before and after the improvement? How much has overall efficiency increased?

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