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

**Work Integrated Learning Programmes Division**

**First Semester 2024-2025**

**Comprehensive Examination**

**(EC-3 Regular)**

Course No. : SE ZG544

Course Title : Agile Software Processes

Nature of Exam : Open Book

Weightage : 40%

No. of Pages = 2

# No. of Questions = 7

Duration : 2 ½ Hours

Date of Exam : 30/11/2024 (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. Scenario: You are working with a client to develop a mobile app. The client provides you with the following user story: “As a frequent traveler, I want to save my favorite destinations so that I can quickly book them again.” How would you assess this user story using the INVEST criteria, and what improvements could be made to make it more effective?
5. Scenario: You are leading a team to develop an e-commerce website. You have a large Epic: “As a customer, I want to browse products, add them to my cart, and make a purchase so that I can receive the product.” How would you split this Epic into smaller, actionable user stories? [3 + 3 = 6]
6. Scenario: Your product backlog contains a user story: “As a customer, I want to receive a notification when my order is shipped so that I am updated about the delivery process.” You are tasked with prioritizing this story into each of the four categories of MoSCoW technique. Provide reason for each categorization.
7. Scenario: A customer wants to prioritize features for an upcoming release. They are unsure whether to implement a new feature or focus on improving existing ones. Explain how you would use the Kano Model to aid the decision. [3 + 3 = 6]
   1. The team is planning to release the software after every three sprints. The team has completed two sprints and is considering the following user stories for the next sprint. Identify the user stories for the next sprint. How many releases will be required to clear the backlog? The team’s velocity is 20 story points per sprint. [6]

|  |  |  |
| --- | --- | --- |
| User Story | Story Points | Value Points |
| As a user, I want to receive order notifications. | 5 | 15 |
| As an admin, I want to approve refunds. | 8 | 20 |
| As a customer, I want to filter products by price. | 3 | 9 |
| As a guest, I want to create a wishlist. | 10 | 15 |

1. Your team has completed 5 sprints with varying velocities (16, 22, 18, 24, and 20). Based on this data, how would you calculate a high-confidence forecast for the next sprint? What will you convey to your stakeholders about your upcoming sprint commitment using a 90% confidence interval?
2. Your team's velocity has decreased steadily over the last three sprints (from 28 to 18). What factors might be contributing to this decline, and how would you address them?

[3 + 3 = 6]

1. During sprint planning, your team identifies a high-priority complex feature that carries significant risk of failure due to technical complexity. How would you approach mitigating this risk without delaying the sprint’s progress? Provide three mitigation Strategies.
2. You are managing an Agile team that is struggling to maintain quality while keeping up with the sprint timelines. How would you balance delivering features quickly while ensuring high product quality? [3 + 3 = 6]
3. Your team is consistently using velocity as the primary metric for tracking performance. However, stakeholders are concerned that this metric alone doesn’t provide a full picture of team progress. What additional Agile metrics would you recommend incorporating, and how would each contribute to a more comprehensive assessment of the team's performance?
4. The cumulative flow diagram for your project shows a widening “in-progress” section, indicating work items are not being completed as quickly as they are being started. What might be the root cause, and how would you adjust the team’s process to resolve it? Provide at least three possible reasons for this issue. [3 + 3 = 6]
   1. Scrum Meetings:

Your team has been running Scrum (Sprint length = 2 weeks) for 6 months, but stakeholders are complaining that meetings are taking too much time and reducing development productivity. After analysis, you find that Sprint Planning takes 8 hours, Daily Scrums average 30 minutes, Sprint Reviews take 6 hours, and Retrospectives take 4 hours for 2-week sprints. How would you address this situation while maintaining the effectiveness of Scrum ceremonies? [4]

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