Quiz 1, Fall 2024
CSE470: Software Engineering (Sec-16)
SET- B

Name: **ID:**

Total Marks: _____/ 20   **Time: 25 minutes**

Short questions (CO1)

1. Write down four phases of the Agile Unified Process (AUP).   **[3]**
   Inception (not the movie, come back to reality), Elaboration, Construction, Transition

2. Briefly describe what is a sprint backlog.   **[3]**
   A spring backlog is where the team stores selected high-priority features for their sprint to implement from the product backlog. The estimated time is updated daily, and any team member can add, delete, and change the product backlog.

MCQ (CO1)

1. The system must dynamically allocate and deallocate resources is a -   **[1]**
   ☒ Nonfunctional requirement   ☐ Functional requirement

2. Which of the following is a valid sprint duration of Scrum?   **[1]**
   i.   ~~14-26~~
   ii.   14-28
   ~~iii.~~   ~~12-30~~
   iv.   14-30
   Either ii or iv is fine.

Scenario (CO1)

3. The IT team of "PetroTech Industries" faced a challenge managing a crucial task. Recognizing the need for a software solution, the team searched for the right partner and decided to collaborate with "Tech Solutions," a distinguished company known for its innovative approaches. As the research progressed, PetroTech Industries' IT team determined that the project's requirements were clearly defined and manageable, which could accelerate the development process. Due to time constraints, there was a need to deliver the whole product as soon as possible. Afif Ahmed, the team lead at "Tech Solutions," assured PetroTech that the company had a team of highly skilled engineers who were well-trained to develop the project and provide the necessary technological support. He proposed following an SDLC model, which follows a unique technique to verify each phase by creating essential test cases during the analysis stage. This approach ensured that when it came time to validate the software, they could employ those test cases to conduct testing. Before the development phase, PetroTech Industries committed to the initial analysis and ensured no changes would be made during development. The collaborative efforts between "PetroTech Industries" and "Tech Solutions" resulted in the successful and timely delivery of the software solution.

   a. Which SDLC would Afif Ahmed select for the software development, and justify your choice?   **[5]**

Ans:

Afif Ahmed should select the V-Model.

The V-Model is appropriate because the project requirements are clearly defined and not expected to change, aligning with the model's structured approach. Its unique feature of creating test cases during the analysis phase ensures efficient validation of each phase, which reduces errors and provides high-quality outcomes. Additionally, the V-Model emphasizes early testing, which aligns well with the project's time constraints. The skilled team at Tech Solutions is equipped to handle technical challenges, making the V-Model practical for delivering solutions on time.

b. In the scenario described above, what technique does Afif Ahmed mention? **[2]**

Ans:

Afif Ahmed mentions the technique of creating early test cases during the analysis stage. This is part of the verification and validation approach in the V-Model, where verification ensures that each phase meets its objectives, and validation confirms that the final product fulfills the specified requirements. This systematic process ensures thorough testing and reduces errors.

c. After 3 days of working, the head of "PetroTech Industries" wanted to incorporate additional functionalities into the software. Based on the selected model, is it feasible to implement these changes? Justify your response. **[3]**

Ans:

In the V-Model, incorporating additional functionalities during development is not feasible without disrupting the workflow. Since each phase has a corresponding testing phase, any change would require revisiting earlier stages like requirements and design, creating new test cases, and potentially delaying the project. Additionally, PetroTech committed to keeping the requirements stable, so adding functionalities contradicts the agreed-upon approach and could result in significant cost and time overruns.

d. If the team decides to create documentation after the development, what are the advantages and disadvantages of the chosen model in the above scenario? **[2]**

Ans:

Advantages –

1. Test activities are planned before testing
2. Saves time over waterfall

Disadvantages –

1. Changes are not welcomed
2. For failed tests, the test document and code both need update