SET C

Design and Analysis of Software Systems (DASS)

Spring 2026

Quiz – 1 : 25 points

(Total Time 45 minutes)

Roll No: 2024101037 **Programme:** CSE

Q1. A software team is under pressure to deliver features rapidly while keeping the system stable as it grows in size and complexity. The team has noticed that adding new features often requires modifying existing code, deployments are risky, and small changes sometimes cause unexpected failures late in the project. (5 points)

Answer the following:

1. **Explain which design and maintenance practices can help the team add new features safely as the system evolves.**
2. **Describe how integration and testing practices can reduce the risk of late-stage failures.**
3. **Discuss how process and workflow improvements can help the team deliver faster without increasing errors.**
4. **Explain how project scheduling concepts can be used to manage delivery risk when deadlines are tight.**

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Q2. Given the task table below perform the following (6 points):

Task Identifier	Estimated Hours	Task Predecessors
A	10	None (start)
B	25	A
C	20	A
D	20	C
E	18	B
F	10	E
G	52	D,F
H	30	E
I	0 (done)	H,G

a. **Construct a network dependence graph:**

b. **Identify the critical task path:**

c. **Assuming that all its preceding tasks are performed in exactly the hours estimated how much slack time does Task D have?**

d. **Assuming that all its preceding tasks are performed in exactly the hours estimated how much slack time does Task E have?**

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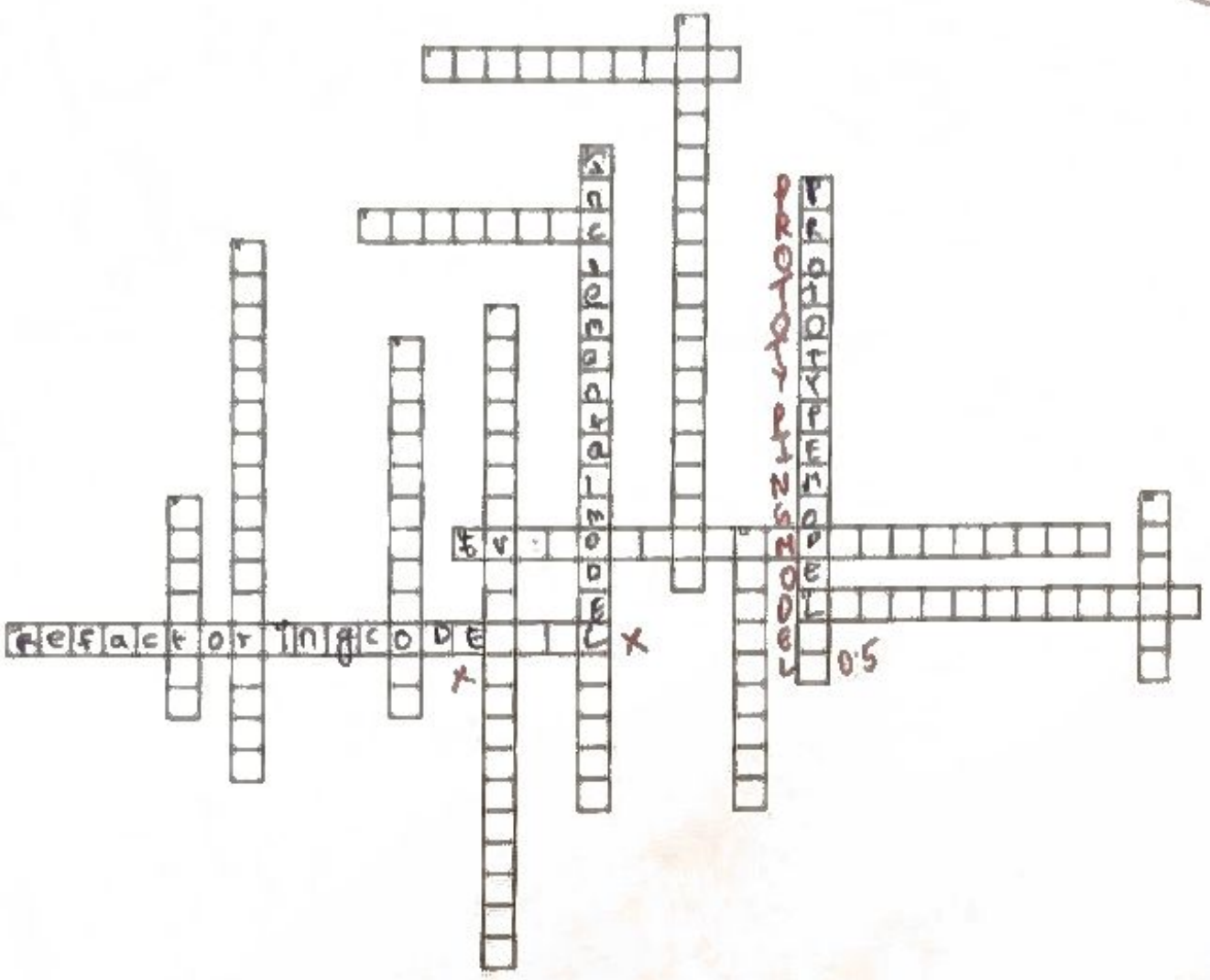
Q3. Solve the crossword puzzle using terms that were discussed in class over the past four weeks. Note that multiple words may be joined together without any white space. For example: Evolutionary Design may be written the puzzle as EVOLUTIONARYDESIGN (14 points)

0.5



CLUES:

ACROSS

2. Chart used primarily for progress communication rather than dependency analysis
5. Code quality practice that minimizes technical debt
11. This was the goal of the PDCA tennis ball activity
13. Practice of dividing problems to improve manageability
14. Design principle violated when adding features requires modifying existing modules

DOWN

1. Scheduling method that determines project completion time → Gantt charts / Network dependency graph
3. Activity that improves system capabilities without fixing defects
4. Model used to validate understanding before full-scale development
6. Testing activity that protects against unintended side effects
7. Process used to ensure frequent and safe code merging
8. Testing phase that precedes real user exposure
9. Planning artifact whose ordering reflects business priority
10. Cultural shift enabling faster delivery and operational stability
12. Time margin available before a task affects overall delivery

FPA