SET B

Design and Analysis of Software Systems (DASS)

### Spring 2026

Quiz – 1 : 25 points

(Total Time 45 minutes)

Roll No: 2024101080   Programme: CSE

Q1. A development team is facing repeated delays and quality issues while working on a software project. Although individual developers are working hard, the system often breaks when new features are added, schedules keep slipping, and it is difficult to understand which tasks are actually delaying the project. (5 points)

Answer the following:

1. Explain why working harder is not necessarily solving the problem, and identify the process-related issue involved.
2. Describe how changes in design practices can reduce the frequency of system breakages.
3. Explain how integration and testing practices can help detect problems earlier.
4. Discuss how better scheduling visibility can help the team manage delays more effectively.
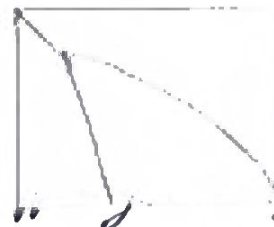
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Q2. Given the task table below perform the following (6 points):

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:

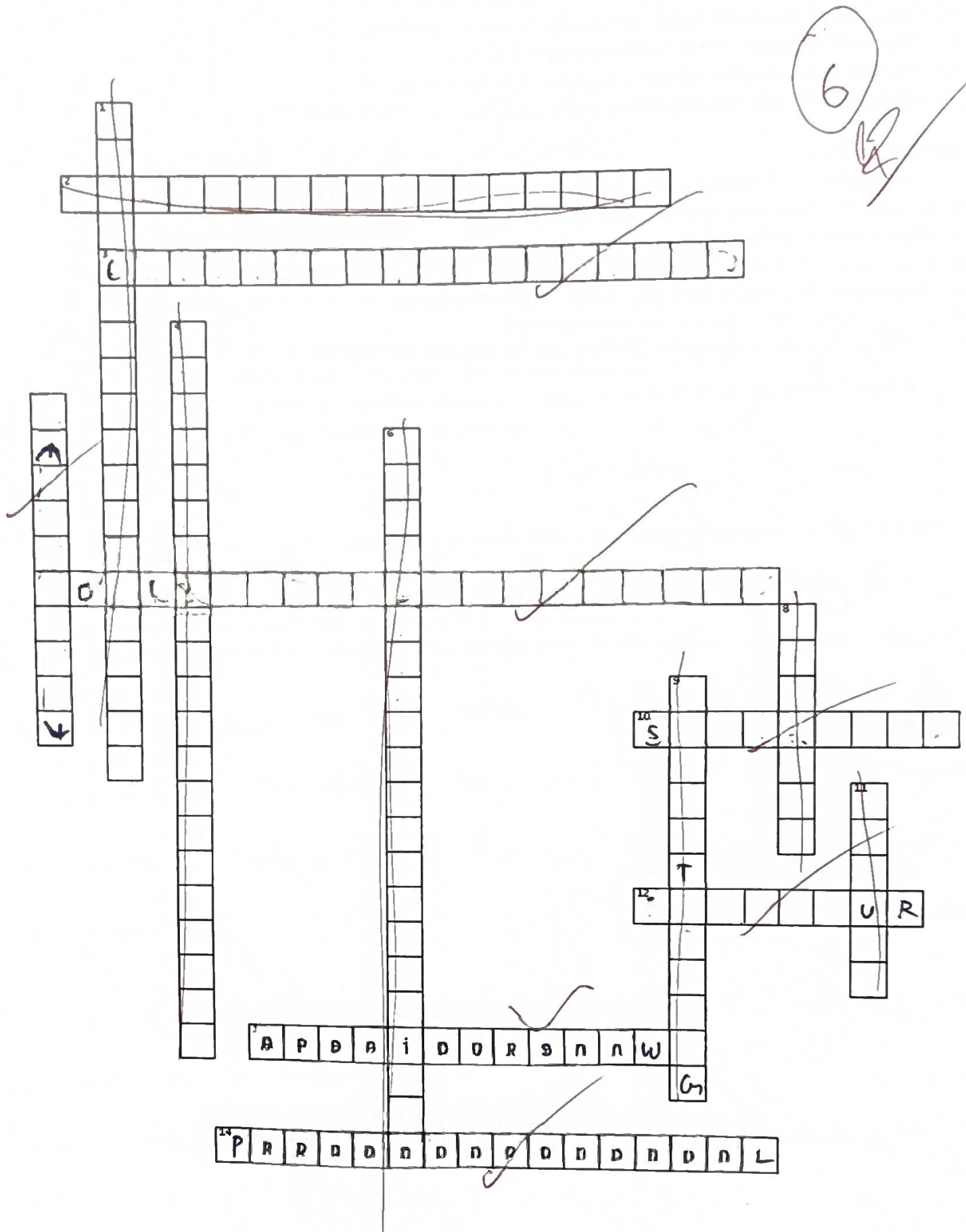b. Identify the critical task path:

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)

6

The crossword grid contains the following partially filled entries:

- Across entry (13): A P B A i D U R g n n W
- Below it: G
- Across entry (14): P R R D n D n D D D n D n L
- Entry starting with C (3 down/across)
- Entry with O L (across)
- Entry with arrows (up/down) near left
- Entries marked: S (10), T, U R (11/12), G

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CLUES:

ACROSS
2. Testing activity that protects against unintended side effects
3. Scheduling method that determines project completion time
7. Process used to ensure frequent and safe code merging
10. Time margin available before a task affects overall delivery
12. Code quality practice that minimizes technical debt
13. Practice of dividing problems to improve manageability
14. Model used to validate understanding before full-scale development

DOWN
1. Design principle violated when adding features requires modifying existing modules
4. Activity that improves system capabilities without fixing defects
5. Chart used primarily for progress communication rather than dependency analysis
6. This was the goal of the PDCA tennis ball activity
8. Planning artifact whose ordering reflects business priority
9. Testing phase that precedes real user exposure
11. Cultural shift enabling faster delivery and operational stability