12.1 Requirements

Name: _____ Class: _____ Date: _____ **Total: 24 marks**

KEY WORDS functional requirement • non-functional requirement

Objective

Write testable requirements and trace them to tests.

1 Key knowledge and worked examples

■ The kinds

Functional: what the system does. Non-functional: how well. Use case: one actor goal, end to end ✓.

■ Worked example: the course list

FR-1 limit 5 (sixth rejected); FR-2 due = date + 21; FR-3 one reminder per overdue day; NFR-1 search p95 under 2 s ✓.

2 Practice

2.1 "Search answers within 2 s" – which kind? [3]

2.2 Give the testable rewrite of "the app should be easy to use". [3]

2.3 Why is "use Redis" wrong inside a requirement? [3]

3 Exam-style questions

3.1 The library adds a renewal rule: a member may renew a loan twice, each renewal extending the due date by 14 days from the current due date, only if no other member has reserved the copy.

Write FR-4 for the rule with a measurable clause. Write two acceptance tests (name, action, expected result). State one non-functional requirement the renewal feature might carry. Write the use-case sentence with its actor. [8]

3.2 Trace FR-2 ("a borrow records the date and the due date 21 days later").

Give the test-first sequence: the failing test, the commit that closes it, and what the commit message must contain. Compute the due dates for borrows on 2026-02-10, 2028-02-10 and 2026-12-20. State what the suite checks about the requirement-test-code chain. [7]