UNIVERSITY COMPUTER SCIENCE • EXERCISE SHEET

12.2 Architecture and design

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

KEY WORDS dependency rule • coupling

Objective

Count coupling and cohesion and read a sequence diagram.

1 Key knowledge and worked examples

■ The rule

Three layers; dependencies point inward – the domain knows no framework ✓.

■ Worked example: the counts

Loan-rule change: 1 module, 2 files. The smeared version: 3 layers, 5 files ✓. The borrow sequence: four participants, five labelled messages ✓.

2 Practice

2.1 Which layer owns the limit rule, and why there? [3]

2.2 What does “the domain knows no framework” buy? [3]

2.3 Name the four participants of the borrow sequence. [3]

3 Exam-style questions

3.1 A teammate proposes moving the limit check into the presentation layer “because the button is there”.

State which principle is violated and the cost, using the file counts. Give the layered design (one sentence per layer’s job). Redraw the sequence in words if the check moves: name the new message flow and what storage must now validate. [8]

3.2 Reminder delivery today is email; the product wants push for mobile users.

State where the Notifier boundary sits and why the domain never names email or push. Give the swap’s cost and the suite’s proof that FR-3 still holds. Name the design metric this improves. [7]