COMSATS University Islamabad, Abbottabad Campus

Department of Computer Science

Examination – Mid Term Exam (Spring 2025)

Reviewed! 6/5/25

Class: BSSE 7th A/B/C	Date: 7th May, 2025
Subject: Software Reverse Engineering	Instructor: Ms. Faiza Hameed
Total Time Allowed: 1hr 30 Mins	Max Marks: 25
Name: _____	Registration # _____

SECTION-A (Marks: 16)

Q1: [CLO 1]: Explain why preventive maintenance might be more cost-effective than corrective maintenance in long-term software projects. **[4 Marks]**

Q2: [CLO 1]: Reverse engineering is often misunderstood as simply examining source code. Discuss how reverse engineering process extends beyond code analysis and plays a role in systems-level re-engineering. **[4 Marks]**

Q3: [CLO 2]: Apply the concept of architecture restructuring to explain how it can improve the performance and maintainability of a legacy system along with an example? **[4 Marks]**

Q4: [CLO 2]: Write the concept that, how runtime analysis and profiling can uncover hidden performance issues in legacy systems. How can these findings inform reengineering decisions? **[4 Marks]**

SECTION-B (Marks: 9)

Q5: [CLO 1]: Scenario: During the reverse engineering of an old weather monitoring system, you detect that updates to weather data are manually pushed to each display (e.g., dashboard, mobile app, SMS alert) via explicit method calls in the same class. This approach makes it hard to add or remove display modules without changing the core logic. **[4 Marks]**

- Which design pattern you would apply to refactor this system?
- How does this design pattern improve the extensibility in modern system?
- Draw the UML class diagram for above scenario by using the specific design pattern.

Q6: [CLO 2]: Answer the following questions practically.

- Suppose you have the following JavaScript code in VS Code. What steps would you follow to refactor this line? **console.log(2 * 3.14 * radius);** **[1 Marks]**
- Design ESLint rules for, **enforce 4-space indentation, use single quotes, and allow missing semicolons.** **[2 Marks]**
- What must be configured in JProfiler to start profiling a local Java application? **[1 Marks]**
- How can you attach JProfiler to a running Java process without restarting it? **[1 Marks]**

Good Luck!