Rubric for Quiz VI (CSE 347/547 | DES 306/525)

Q1: How is verification different from validation? [4]

- **2 marks:** Proper difference between verification (checking if system works as designed) and validation (checking if it meets user needs and security requirements). Must explain that verification is internal checking and validation is external checking.
- **1 mark:** Student explains that both processes are necessary to ensure system works correctly and meets usability/security standards. Mentions they are complementary.
- **1 mark:** Student discusses the purpose of both in system design - ensuring uptime, usability, and trustworthiness. Shows understanding of practical application.

Q2: Why do you need to identify vulnerabilities before validating them? [4]

- **2 marks:** Student explains that identifying vulnerabilities early shows which system responds to different possible attacks/variations. Must mention that checking vulnerabilities helps fix them and improve system performance/user experience through early detection.
- **1 mark:** Stating different vulnerabilities require different fixes and responses from the system.
- **1 mark:** Student mentions that identifying vulnerabilities before validation helps improve security and usability through informed design.

Q3: Mention ways through which you would identify vulnerabilities for your project. [4]

- **2 marks**: Student lists and describes at least 2 distinct methods. Examples include: capacity testing, authentication processes, mock attacks, vigorous testing, dynamic testing, static code analysis, design walkthroughs, stack analysis, code review, or penetration testing.
- **2 mark**: Student explains technical differences between methods (e.g., dynamic vs. static testing, why each method is useful for different types of vulnerabilities).

Q4: When would you do usability testing? [4 Points]

- **2 marks:** Student identifies multiple appropriate phases: after prototype development, before final deployment, and during iterative refinement cycles. Must explain that testing happens after prototyping but before product deployment.
- **2 mark:** Student explains the purpose: to identify potential usability issues early in development and fix them before full deployment, reducing later-stage fixes.

Q5: Why is mental model important for designing better systems? [4]

- **2 marks:** Defines mental model as a framework of how users think and conceptualize processes. Must explain it maps out user journeys, thinking paths, and how users perform actions.
- **1 mark**: Student connects mental models to system design - how understanding user mental models leads to systems aligned with user expectations, reducing cognitive load for users.
- **1 mark:** Student explains that well-designed mental models improve both security and usability simultaneously. Mentions how better mental models make security features more usable.