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Class Test - 1, CIS 235, Software Engineering, Total Marks: 15, Time: 45 Mins

1. Distinguish between Functional Requirements (FRs) and Non-Functional Requirements (NFRs). Provide one clear example of an FR and one example of an NFR to support your answer. **(5 Marks)**

2. A client struggles to articulate their exact daily workflows during standard interviews, often omitting crucial domain knowledge. Recommend two advanced elicitation techniques that can resolve this issue, and justify how they effectively uncover hidden or unstated requirements. **(5 Marks)**

3. Define the MoSCoW prioritization matrix used during the requirements negotiation phase. What specific action must an engineering team take if a requested feature is classified under the "Won't Have" (W) category? **(5 Marks)**

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CT-2

Course Title: Software Engineering; Total Marks: 15; Total Time: 30 Mins

1a. Briefly explain the difference between "Top-Down Integration" and "Bottom-Up Integration". What is a "Stub" in this context? (5)

1b. Developer A builds the high-level main menu first and uses temporary "Stubs" for the missing parts. Developer B builds the low-level database first and uses temporary "Drivers" to test it. Identify which developer is using "Top-Down Integration" and which is using "Bottom-Up Integration". (5)

2. A university website expects a maximum of 5,000 students to log in at the same time during course registration. Explain how a QA engineer would perform a "Load Test" and a "Stress Test" on this website. What specific behavior is the engineer looking for during the Stress Test? (5)

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Course Title: Software Engineering Marks: 15; Time: 30 Mins

CT-3

1 (a) Differentiate between the Problem Space and the Solution Space within the context of the software design process. [3 Marks]

(b) During a system architecture audit using the Architecture Tradeoff Analysis Method (ATAM), how do engineers identify and distinguish a Sensitivity Point from a Trade-off Point? Provide a concrete quality attribute example of each. [4 Marks]

2 (a) State the core mandate of the Liskov Substitution Principle (LSP) formulated by Barbara Liskov. [2 Marks]

(b) Deconstruct the classic geometric dilemma where a `Square` subclass inherits from a `Rectangle` superclass. Explain why forcing a square into this hierarchy breaks behavioral conformance, violates LSP, and fails client expectations. [6 Marks]

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M.G

CT4; Software Engineering; CIS235; Total Marks: 15; Total Time: 30 Mins

1. Compare the Big Bang Adoption and Parallel Running deployment strategies based on their operational concept, advantages, and disadvantages. Which of these two strategies is the safest choice for high-risk environments (such as a core hospital patient-tracking database), and why? (5)
2. Explain the 4 Types of Software Maintenance standardized by ISO/IEC 14764. Provide the primary purpose of each type and state its typical percentage share of the overall maintenance effort across the lifecycle.
3. Define a Legacy System and list three of its key characteristics. Differentiate between the two software reengineering techniques—Reverse Engineering and Forward Engineering—in terms of SDLC progression