

Software Engineering

考試方式：Close Book 考試時數：4 hours

1. The Layers of the SCM(Software Configuration Management) Processes are SCIs, Identification, Change Control, Version Control, Configuration Auditing, and Reporting. Please give an example to detail explain the SCIs and all the five Processes elements. 20%
2. Please give a name of a Software Development Methodology (for example OOAD with UML/Unified Process/DFD Methodology) that you familiar with. Explain all elements of the methodology with a practical case-study. 20%.
3. Explain “non-functional requirements” with an example. 10%
4. What is Liskov Substitution Principle? Give an example and explain its application in implementation. 20%
5. Consider a traffic light system at a four-way crossroads (two roads intersecting at right angles). Assume the simplest algorithm for cycling through the lights (e.g., all traffic on one road is allowed to go through the crossroad, while the other traffic is stopped). Identify the states of this system and drew a state machine diagram describing them. Remember that each individual traffic light has three states (green, yellow, and red). 15%
6. What kind of testing is the following statement “...one tests only one component at a time...Finally one works up to the final design of the entire engine, to the necessary specifications.”? What are advantages and disadvantages of this type of testing? 15%