

Must-know Knowledge of “Software Engineering and Management”

By Prof. S.J. Huang on November 15, 2023

Department of Information Management, NTUST (Taiwan Tech)

Fundamental to SEM

1. List at least five principles of seven Engineering Principles.
2. What are the four natures/essences for a software development project.
3. How to define a good quality application software?
4. What is the theory of triple constraint in project management?
5. What is scope creep and ripple effect in software engineering?
6. List at least 6 knowledge areas (KA) in “Guide to SWEBOK”.

Software Process

7. List three generic software development process models?
8. What are four fundamental activities that are common to all software processes?
9. List the common components in the definition of process description.
10. What is “V model” in software engineering?
11. List two often used approaches coping with software changes due to its inevitable nature.
12. List principal factors affecting the choice of plan-based or agile software development.

Agile Software Development

13. What’s Manifesto for Agile Software Development?
14. List at least five principles of agile methods.
15. List at least six practices or techniques that were introduced in extreme programming (XP)?
16. Why has the Scrum agile method been widely adopted in the practice of software development industry?
17. For what types of system particularly are agile development approaches likely to be successful?
18. List four practical problems with agile software development.
19. List three questions that should be asked when deciding whether or not to adopt an agile method of software development.
20. Drawing the SCRUM workflow to illustrate three roles, three artifacts, and three ceremonies.
21. Why is ScrumBan widely adopted in APP development?

Capability Maturity Model Integration (CMMI)

22. What are the three models of SEI Capability Maturity Model Integration (CMMI) V1.3?
23. List five Maturity Levels (ML) in the CMMI V1.3 model.
24. List four Capability Levels (CL) in the CMMI V1.3 model.
25. List four categories of process areas in the CMMI-DEV V1.3 model.
26. List at least five process areas at ML2 in the CMMI-DEV V1.3 model.
27. List at least five process areas at ML3 in the CMMI-DEV V1.3 model.
28. List at least six generic practices within Generic Goal 2.
29. List two generic practices within Generic Goal 3. (2%)
30. What’s the distinction between stage and continuous representations in the SEI’s CMMI model?
31. What’s the definition of “Defined Process” in the CMMI model?
32. What are the practices to be done for REQM PA to certify CL 1?
33. What’s the distinction between the generic goal and specific goal in the SEI’s CMMI model?
34. What is the meaning of “Process Institutionalization” in the CMMI model?
35. Explain the following English abbreviations “SCAMPI, IDEAL, PAL, PIID”. What are they used for?