SEF Tutorial New Syallabu

1. Define the need of Software Engineering and what are the application domain of software engineering. Explain in brief.
2. Why do we need software processes explain reuse-oriented software processes.
3. What are the five values of Extreme programming explain XP in detail with necessary diagrams/
4. Define metrics, measures, and indicators. Define software metrics. Given the data below, compute the function point value, effort

   and total cost of a project with the following information domain characteristics.
   Number of user inputs: 30
   Number of user outputs: 50
   Number of user inquiries: 5
   Number of files: 4
   Number of external interfaces: 2
   Assuming that the complexity of the given software is simple,
   productivity of software developers is 15 FP/PM and their salary is
   Rs.200 /PM.
5. Explain different project estimation and decomposition techniques.
6. Define software risk. Explain different types of software risk with examples.
7. What are risk management steps? How does risk identification help a manager to resolve the risks?
8. How does risk projection help to solve risk earlier? Explain
9. Why use case is useful. Explain the need for use cases and user stories while performing requirement analysis.
10. Draw a use case diagram for an online library system.
11. How does a data flow diagram (DFD) help to acquire the functional aspect of any system? Explain.
12. Draw a DFD level 1 for the NCIT examination system.
13. Why is software design important? Explain design principles and guidelines while designing any software projects.
14. What is a data dictionary? Why it is used. Prepare a data dictionary for a telephony system.
15. What are different software architecture styles? Explain data flow and client-server architectures with necessary diagrams.
16. Why testing is required. Explain different types of testing. (Hint: Black box & White box & Gray Box with an example, Note: give an example of the black box & white box, give the example of boundary value & equivalent partitioning)
17. Explain different levels of software testing. (Hint: Unit testing, integration testing, V&V, System testing)
18. Define Cyclomatic Complexity (CC). Determine the CC of the Following code.
    int num,i;
    while(i<=num)

```
{
if(i%2==0)
printf("The number is odd");
i++;
}
printf("Exit from loop");
printf("Thank You!!");
```

19. Explain the terms verification and validation. Why regression testing and smoke testing are required while performing software integration?
20. What are the attributes of good software? How do you ensure the software being built has good quality?
21. Define software quality. Explain different layers of the capability maturity model (CMM).
22. Differentiate between ISO & CMM.
23. What are the fundamental sources of changes in any software? How does version control help to manage changes in software systems?
24. Differentiate between version control and change control (Hint: You need to draw 14 steps and also evolution graph & ed object pool for version control)
25. Define baseline. Explain the importance of baselined software.
26. What is domain analysis? How do we analyze the domain of any system and create domain models? Explain with the necessary diagrams.
27. Explain important features of object-oriented projects.
28. Explain OOA & OOD (Diagram is Mandatory)
29. Differentiate between OOA & OOD (Diagram is Mandatory)