

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FIFTH SEMESTER B.TECH DEGREE EXAMINATION (R,S), DECEMBER 2023

COMPUTER SCIENCE AND ENGINEERING

(2020 SCHEME)

Course Code : 20CST309

Course Name: Management of Software Systems

Max. Marks : 100

Duration: 3 Hours

PART A

(Answer all questions. Each question carries 3 marks)

1. Write any three differences between waterfall model and spiral model.
2. Identify any four types of requirements that may be defined for a software system.
3. Incremental software development could be very effectively used for customers who do not have a clear idea about the systems needed for their operations. Discuss?
4. Define any three types of system testing.
5. Compare white box testing and black box testing.
6. Differentiate between GPL and LGPL.
7. Describe COCOMO cost estimation model?
8. Explain any two technique used for software scheduling.
9. Enlist the important goals for software project management.
10. List out the 3 methods for finding cyclomatic complexity.

PART B

(Answer one full question from each module, each question carries 14 marks)

MODULE I

11. a) A super market owner decided to automate the billing process and gave his finite requirements to the software company. The company follows modular design. The project head wants to reduce the overhead of people allocation during development. Recommend a process model which is best suitable in this case and explain its phases with neat diagram. (10)
- b) Explain Agile methods and agile manifesto. (4)

OR

12. a) Suppose you were to plan to undertake the development of a product with a large number of technical as well as customer (8)

related risks, which software process model would you adopt? Justify your answer.

- b) What you meant by functional or non-functional requirements? (6)
Imagine that you are developing a library management software system for our college, list eight functional and four non-functional requirements.

MODULE II

13. a) Consider online Movie ticket reservation software. Prepare Personas, Scenarios and User stories for identifying user requirements. (5)
b) Illustrate requirement engineering processes and explain the four high level activities involved in it. (9)

OR

14. a) Define software architecture. Illustrate any two software architectural styles followed in software developing companies. (5)
b) Describe the different types of coupling and cohesion in software design. (9)

MODULE III

15. a) Explain the formal and informal review techniques with an example. (7)
b) Explain basis path White box testing strategy with an example. (7)

OR

16. a) Discuss the Post-Mortem Evaluations performed by Software Engineers. (6)
b) Describe Continuous Integration, Delivery and Deployment (CI/CD/CD) in DevOps Automation. (8)

MODULE IV

17. a) A company needs to develop digital signal processing software for one of its newest inventions. The software is expected to have 20000 lines of code. The company needs to determine the effort in person-months needed to develop this software using the basic COCOMO model. The multiplicative factor for this model is given as 2.2 for the software development on embedded systems, while the exponentiation factor is given as 1.50. The exponential factor for estimating development time is 1.35 and the multiplicative is 2.5. What is the estimated effort in person-month? Also compute the time for development and People required for this project. (6)
b) Discuss Risk management process in software project management with a diagram. (8)

OR

18. a) Explain how Agile project management is accomplished using SCRUM framework. (5)
- b) Define software configuration management. Explain different activities involved in configuration management. (9)

MODULE V

19. a) 'Quality of a product depends upon its development process'. Discuss how ISO 9000 and CMMI software process improvement frameworks help in the development of software products with enhanced quality. (10)
- b) Explain about Software Quality Assurance? (4)

OR

20. a) List out the metrics that are used to measure software quality. Justify how these metrics interpret the quality of the Software. (5)
- b) Describe Software Process Improvement process. (9)
