Register No.:   …………………………..   Name: ……………………………………………………………

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FIFTH SEMESTER B.TECH DEGREE EXAMINATION (S), FEBRUARY 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. What are the steps in Software development activities? Explain briefly.
2. List out the essential high level requirements of an 'Insulin Pump Control System'.
3. Distinguish between functional and non-functional requirements in software requirement specification with relevant examples.
4. What is a Requirements Traceability Matrix and what are its goals?
5. Distinguish between the Open Source licenses GPL, LGPL and BSD.
6. Illustrate Test Driven Development (TDD) in software testing.
7. Explain the Risk Management Process in software project management.
8. Exemplify Lean Approaches in Software Development.
9. What are the various Software Quality attributes?
10. Compare Virtualization with Containerization.

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

MODULE I

11. a) Compare Waterfall Model with Spiral Model.   (7)
    b) Illustrate incremental model for the development of a Hospital Management System.   (7)

OR

12. a) What is Agile Software Development? Explain Agile Development Techniques.   (7)
    b) Illustrate Scrum method for the development of a Food Delivery app.   (7)

MODULE II

13. a) Draw the Use Case diagram and Class diagram of 'Mentcare' – a patient information system for mental health care. (7)

    b) Discuss the 'Ariane 5 launcher failure' case study and suggest Software Engineering improvements required in the development process. (7)

OR

14. a) Illustrate Architectural Design for 'Mentcare' – a patient information system for mental health care. (7)

    b) Illustrate the major components of SRS Template. (7)

MODULE III

15. a) Distinguish between Software Inspection and Testing. Discuss the 3 stages of Testing. (7)

    b) What is Software Implementation? Discuss the three main 3 Implementation issues connected with Software Development. (7)

OR

16. a) Discuss Path Testing in Software Development. (7)

    b) Discuss DevOps Model of Software Development. (7)

MODULE IV

17. a) Illustrate different Configuration Management Activities in software project management. (6)

    b) Compare and contrast the Agile Software development models SCRUM and Kanban. (8)

OR

18. a) Distinguish between Basic, Intermediate and Complete CCOMO. (6)

    b) Using Intermediate COCOMO, calculate the Effort and Development Time required for an Organic (a = 2.4, b = 1.05, c = 0.38) Project with 12 KLOC lines of code. Cost drivers to be considered are: Required Software Reliability – High (1.15), Required Turnaround Time – High (1.07), Software Engineer capability – Very High (0.70), and Use of Software Tools – Low (1.10). All other Cost drivers are Nominal (1). (8)

MODULE V

19. a) Discuss about Software Quality, Standards and their importance. (7)
    b) Illustrate the relevance of Microservices. How are they deployed? (7)

OR

20. a) Illustrate Software Review Process. (7)
    b) What is Cloud based software? Exemplify 'Everything as a Service'. (7)

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