

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

## SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

**FIRST SEMESTER M.C.A DEGREE EXAMINATION (Regular), DECEMBER 2022**

**(2021 SCHEME)**

**Course Code: 21CA103**

**Course Name: Advanced Software Engineering**

**Max. Marks: 60**

**Duration: 3 Hours**

### PART A

***(Answer all questions. Each question carries 3 marks)***

1. Define software engineering. What are the essential attributes of good software?
2. Differentiate project management and risk management.
3. Justify the various aspects of software quality.
4. Elucidate the purpose of a version control system.
5. Explain the principles of agile methods.
6. Describe unit testing.
7. Draw neat sketch on sociotechnical system stack.
8. How can you achieve dependability?
9. Give four circumstances where you might recommend against software reuse.
10. Write the key elements of SaaS.

### PART B

***(Answer one full question from each module, each question carries 6 marks)***

#### MODULE I

11. a) Suppose that a project was estimated to be 400 KLOC. Calculate the effort and development time for organic mode. (3)  
b) Explain why incremental development is the most effective approach for developing business software systems. Why is this model less appropriate for real-time systems engineering? (3)

**OR**

12. a) Draw a neat diagram on plan driven and agile development. Explain. (4)  
b) What is scrum sprint? (2)

#### MODULE II

13. a) Why are software standards important? (3)  
b) What is merge and its types? (3)

**OR**

14. a) Explain configuration management of a software system product with a neat sketch. (4)  
b) What is Git? (2)

**MODULE III**

15. a) Explain component interface testing with a suitable diagram. (4)  
b) Why do we need to scale agile? (2)

**OR**

16. a) Illustrate DevOps life cycle with a diagram. (4)  
b) List the elements of configuration management in DevOps. (2)

**MODULE IV**

17. a) Give short note on availability and reliability. (3)  
b) List the design guidelines in system security. (3)

**OR**

18. a) Differentiate safety and security terminologies. (4)  
b) What are the four principal dimensions to dependability? (2)

**MODULE V**

19. a) Explain CBSE process with a neat diagram. (4)  
b) Discuss the general model of an embedded real-time system. (2)

**OR**

20. a) What are the various types of specializations of a software product line? (2)  
b) Explain architectural patterns for distributed systems. (4)

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