

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

**SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)**

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

**FIRST SEMESTER M.TECH DEGREE EXAMINATION (Regular), DECEMBER 2022****COMPUTER SCIENCE AND SYSTEMS ENGINEERING****(2021 Scheme)****Course Code: 21SE104-C****Course Name: Computer Systems Engineering****Max. Marks: 60****Duration: 3 Hours****PART A*****(Answer all questions. Each question carries 3 marks)***

1. Differentiate between Systems Engineering and Traditional Engineering Disciplines.
2. Explain the power of approximate calculations in the system engineering.
3. How name resolution is performed in DNS?
4. How virtualization of memory addresses is performed?
5. Differentiate between fault and failure with examples.
6. Define the term "Before and after atomicity".
7. What do you mean by reconciliation? List out the things that makes the process complicated.
8. Explain the terms Authenticity, Integrity and Authorization.

**PART B*****(Answer one full question from each module, each question carries 6 marks)*****MODULE I**

9. Describe the categories of problems that are encountered in systems. (6)

**OR**

10. Explain in detail the process of system engineering in software design. (6)

**MODULE II**

11. Explain about the sources of complexity in system engineering. (6)

**OR**

12. Ben Bitdiddle has written a program with 16 major modules of code. (Each module contains several procedures.) In the first implementation of his program, he finds that each module contains at least one call to every other module. Each module contains 100 lines of code. Ben decides to change the implementation. Now there are four main modules, each containing four submodules in a one-level hierarchy. The four main (6)

modules each have calls to all the other main modules, and within each main module, the four submodules each have calls to one another. There are still 100 lines of code per submodule, but each main module needs 100 lines of management code. Were using of a hierarchy, a good decision? Justify.

**MODULE III**

13. How modularity is enforced in INTEL x86 processor? (6)

**OR**

14. Describe about the three-layer model used in communication networks. (6)

**MODULE IV**

15. You will be flying home from a job interview in Silicon Valley. Your travel agent gives you the following choice of flights: A) Flight A uses a plane whose mean time to failure (MTTF) is believed to be 6,000 hours. With this plane, the flight is scheduled to take 6 hours. B) Flight B uses a plane whose MTTF is believed to be 5,000 hours. With this plane, the flight takes 5 hours. The agent assures you that both planes' failures occur according to memoryless random processes (not a "bathtub" curve). Assuming that model, which flight should you choose to minimize the chance of your plane failing during the flight? (6)

**OR**

16. Discuss how ethernet is attached to a forwarding network (6)

**MODULE V**

17. Discuss how atomicity is ensured in IBM system/370 and general electric 600 line in terms of instruction set (6)

**OR**

18. Explain about All -or--nothing atomicity model for database transactions (6)

**MODULE VI**

19. With a neat sketch explain in detail about Replicated state machine (6)

**OR**

20. Describe the safety net approach of security to satisfy the negative effect (6)

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