Register No.: …… Name: ……..

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FIRST SEMESTER M.TECH DEGREE EXAMINATION (Regular), FEBRUARY 2022

(Telecommunication Engineering)

(2021 Scheme)

Course Code : 21TE104-B

Course Name: MODELING AND SIMULATION OF COMMUNICATION SYSTEMS

Max. Marks : 60 **Duration: 3 Hours**

PART A

(Answer all questions. Each question carries 3 marks)

1. Compare simulation methodology and modeling methodology.
2. Explain Monte Carlo Simulation.
3. List out the different levels of considerations during the modeling of communication systems.
4. List the four functions used to characterize the behavior of a multipath channel.
5. Define Signal to Noise Ratio.
6. What is sequential estimation?
7. Differentiate model verification and model validation.
8. Define terminating simulation.

PART B

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

MODULE I

9. With an example, explain Random Process Modeling and Hypothetical Systems Modeling. (6)

OR

10. Describe the various steps involved in the simulation. (6)

MODULE II

11. Describe the process of generating Pseudo Random Binary Sequences using LFSR. (6)

OR

12. List any two methods used for estimating the power spectral density of a process. (6)

MODULE III

13. Explain single test tone and multi test tone in analog sources. (6)

OR

14. With a neat block diagram, explain direct sequence spread spectrum system. Also explain the issues associated with it. (6)

MODULE IV

15. Explain the statistical characterization of multipath fading channel using WSSUS model. (6)

OR

16. Describe the methodology for simulating the performance of a voice communication system operating over a fading channel. (6)

MODULE V

17. Describe the time domain simulation procedure for estimating SNR. (6)

OR

18. Explain Monte Carlo procedure for estimating BER of a system. (6)

MODULE VI

19. Explain the 'method of regeneration' for variance estimation. Also discuss its problem. (6)

OR

20. Design a system for the performance evaluation of CDMA Cellular Radio System. (6)

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