VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD
M.E. I Year (ECE) II-Semester (Make Up) Examinations, August-2016
(Communication Engineering & Signal Processing)

Principles of Communication Systems Simulation with Wireless Applications

Time: **3** hours

Max. Marks: **70**

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A (10 X 2=20 Marks)

1. Define any two advantages of simulation.
2. What is the difference between sampling and quantization?
3. List any two synthesis techniques used for FIR filters.
4. Explain any two differences between the Simulation of low pass Complex Envelope and Band Pass Signals.
5. List the steps involved during simulation of PLL.
6. How do you simulate n^{th} order differential equation?
7. List advantages of Monte Carlo simulation.
8. Define post processing.
9. What are the considerations one has to follow for sampling rate while using Monte Carlo simulation?
10. Discuss in brief about semi-analytical techniques.

Part-B (5 × 10 = 50 Marks)
(All bits carry equal marks)

11. a) Explain the steps involved in Simulation Methodology with the help of block diagram.
    b) Explain random process with the help of relevant expressions and examples. Why deterministic process is more suitable for simulation?

12. Explain the simulation models for
    a) Multi Carrier Signals.
    b) Non Linear Signals.

13. a) How do you generate random signals using random numbers?
    b) Compare the performance obtained in I order and II order PLL.

14. a) Compared to basic graphical techniques, how Monte Carlo method is different.
    b) How Monte Carlo method is useful in Communication domain. Explain with the help of one application in Communication System.

15. a) Why Monte Carlo simulation is said to be more efficient compared to other simulations? Explain with the help of an example.
    b) What is the methodology used for simulating a wireless system considering system level simplifications.

16. a) What is meant by Monte Carlo Integration? Explain with the help of an example.
    b) What is meant by estimation? Explain any two techniques used for estimation of signal from the noise.

17. Answer any *two* of the following:
    a) Multi disciplinary aspects of Simulation
    b) Simulation techniques used for IIR filters
    c) Mapping of uniform RVs to arbitrary PDF.

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