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Code No. : 5213

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
M.E. I Year (ECE) II-Semester (Main) Examinations, July-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 × 2 = 20 Marks)

1. List any two classical cases of complexity where simulation is useful.
2. Indicate different Simulation techniques used for IIR filters.
3. What is the difference between Reconstruction and Interpolation
4. Differentiate between design process and synthesis process.
5. Define low pass and band pass sampling theorem.
6. Discuss about outage probability.
7. What is the difference between Pre and Post Processing?
8. Formulate the mathematical expression of AWGN Channel.
9. What is the difference between Correlated and uncorrelated Gaussian random numbers?
10. Write about the limitations of Monte Carlo simulation.

Part-B (5 × 10 = 50 Marks)

(All bits carry equal marks)

11. a) Explain the Multi-disciplinary aspects of simulation with the help of example of Complexity.
b) Differentiate between deterministic and stochastic process.
12. How do you simulate the following?
a) Solution for differential equation.
b) Stationary and Ergodic process.
13. a) How do you simulate Nonlinear and Time varying systems?
b) How do you validate the simulation results of linear band pass systems? Explain with relevant expressions.
14. a) Estimate π value using Monte Carlo method.
b) Discuss about Monte Carlo integration.
15. a) Explain the concept of semi analytic technique with the help of an example.
b) How system level simplifications are essential for simulating a wireless system?
16. a) What is meant by Post Processing? Explain how this is carried out in a communication system.
b) What are the limitations of basic graphical techniques? How they are overcome using Monte Carlo method?
17. Answer any **two** of the following:
a) Generation of Random signals & Random number
b) Explain the simulation models for Multi Carrier Signals
c) Sampling and Quantization.

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