

**B.TECH SEM - VII (2007 COURSE) (E & TC ENGG.) : WINTER -  
2017**

**SUBJECT: ELECTIVE I: SIMULATION OF WIRELESS  
COMMUNICATION SYSTEMS**

**Day: Monday**  
**Date: 22/01/2018**

**Time: 02.30 PM TO 05.30 PM**  
**Max. Marks: 80**

**W-2017-2636**

**N.B:**

- 1) **Q.No.1 and Q.No.5 are compulsory.** Out of the remaining attempt **ANY TWO** questions from each section.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer book.
- 4) Assume suitable data if necessary.

**SECTION-I**

- Q.1**
- a) What do you mean by stochastic simulation? Give an example? (05)
  - b) Define and Prove Nyquist Criteria? (05)
  - c) List the steps to estimate the value of  $\pi$  using Monte carlo methods? (04)
- Q.2**
- a) What is an Analytically tedious system? Explain it with an example? (06)
  - b) Define and explain Deterministic simulation with an example? (07)
- Q.3**
- a) Explain the following with respect to Sampling. (07)
    - i) Interpolation                      ii) Decimation
    - iii) Nyquist Criteria                iv) Aliasing
  - b) Explain the following with respect to Sampling. (06)
    - i) Under sampling                      ii) Decimation
    - iii) Interpolation                        iv) Over sampling
- Q.4**
- a) What are the Unbiased and Consistent estimators? (07)
  - b) Why semi-analytic analysis is used? And what are they? (06)

**SECTION-II**

- Q.5**
- a) Differentiate between Discrete and diffused multipath? (05)
  - b) Explain stationarity with respected to Marko model? (05)
  - c) What is Co-channel interference? And methods to correct it? (04)
- Q.6**
- a) What do you mean by scintillation? Explain. (06)
  - b) Explain the simulation of guided wave channel? (07)
- Q.7**
- a) Draw the two state Markov models? (07)
  - b) Write down the Matlab code of the implementations of the simulation using markov model? (06)
- Q.8**
- a) What do you mean by trunking and grade of service? (07)
  - b) Draw the block diagram of CDMA system? (06)