Code: R7310505

R7

B.Tech III Year I Semester (R07) Supplementary Examinations, May 2013

DATA COMMUNICATION SYSTEMS

(Common to CSE and IT)

Time: 3 hours Max Marks: 80

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Name and explain the function of each of the layers of the seven-layer OSI model.
 - (b) With neat diagrams describe the two basic types of electronic communication systems.
- 2 (a) Describe coaxial transmission lines.
 - (b) Explain multimode step-index optical fiber. Also mention its advantages and disadvantages.
- 3 (a) Describe pulse width modulation, pulse position modulation and pulse amplitude modulation.
 - (b) Draw the block diagram of a two-channel PCM-TDM system and explain.
- 4 (a) Determine the wave attenuation between two points with power densities $P_1 = 25 \mu W/m^2$ and $P_2 = 0.05 \mu W/m^2$.
 - (b) Write short notes on the following:
 - (i) Satellite orbits and orbital patterns.
 - (ii) Satellite looks angles.
- 5 (a) Draw and describe the block diagram of a telephone set.
 - (b) Describe the basic operation of a cordless telephone.
- 6 (a) Explain time-division multiple accessing.
 - (b) What are the four types of hand offs possible with N-AMPS?
- 7 (a) List and describe two methods of error correction.
 - (b) Determine the VCS for the following data- and CRC-generating polynomials:

Data
$$G(x) = x^7 + x^5 + x^4 + x^2 + x^1 + x^0 = 10110111$$

CRC $P(x) = x^5 + x^4 + x^1 + x^0 = 110011$

- 8 (a) Define and describe high-level data-link control.
 - (b) Describe synchronous data-link protocols.
