

**R07****Code: R7310505**

B.Tech III Year I Semester (R07) Supplementary Examinations December 2015

**DATA COMMUNICATION SYSTEMS**

(Common to CSE and IT)

(For 2008 regular admitted batch only)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions

All questions carry equal marks

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- 1 (a) Give a note on the following connecting devices:  
(i) Hub.  
(ii) Switch.  
(iii) Router.  
(b) What is a data communication network topology? List and briefly describe the five basic data communications network topologies.
- 2 (a) Describe balanced and unbalanced transmission lines.  
(b) Explain single-mode step-index optical fiber. Also mention its advantages and disadvantages.
- 3 (a) Explain the difference between linear and nonlinear PCM codes.  
(b) List and describe various frame synchronization techniques.
- 4 (a) Describe an electromagnetic polarization.  
(b) What are the requirements for satellites in geosynchronous orbits? What are the advantages and disadvantages of geosynchronous satellites?
- 5 (a) When is D-type conditioning mandatory?  
(b) What is meant by nonlinear distortion? What are two kinds of nonlinear distortion?
- 6 (a) Explain FDMA in detail.  
(b) Describe the format for a USDC Digital voice channel.
- 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) Describe the stop-and-wait method of flow control.  
(b) What are the three transmission states used with SDLC? Explain.

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