

Code No: 09A31201

Jawaharlal Nehru Technological University Hyderabad

B.Tech II Year I Semester Examinations

May/June - 2013

DATA COMMUNICATION SYSTEMS

(Information Technology)

R09

Time: 3 Hours

Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry equal marks

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1. (a) What is the importance of layered network architecture? Explain.
(b) Describe the following terms,
 - (i) Information capacity
 - (ii) Bit rate
 - (iii) Baud rate.(c) What is meant by the term M-ary encoding? [15]

2. (a) List and describe the transmission line losses.
(b) Describe balanced and unbalanced transmission lines.
(c) Why is single-mode propagation impossible with graded-index optical fibers? [15]

3. (a) Explain the principle of differential pulse code modulation.
(b) What is companding? Discuss.
(c) Describe a T1 carrier system. [15]

4. (a) What are the advantages and disadvantages of microwave radio communications over cable transmission facilities?
(b) Describe the difference between wave attenuation and wave absorption.
(c) What is meant by the term skip distance? [15]

5. (a) Briefly describe how a paging system operates.
(b) List and explain various types of crosstalk. [15]

6. (a) Compare first and second generation cellular telephone systems.
(b) Give GSM system architecture and explain. [15]

7. (a) What is the difference between error detection and error correction?
(b) What is meant by a start bit and a stop bit?
(c) Determine the BCC for the following data and CRC generating polynomials:
 $G(x) = x^8 + x^5 + x^2 + x^0$
 $P(x) = x^5 + x^4 + x^1 + x^0$. [15]

8. Write short notes on,
 - (a) Cable modems
 - (b) Bit oriented protocols
 - (c) Data transmission modes. [15]