

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV • EXAMINATION – SUMMER 2013

Subject Code: 141601**Date: 07-06-2013****Subject Name: Data Communication and Networking****Time: 10:30am – 01:00pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
- 4.

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|-----------|-----|------|--|----|
| Q.1 | (a) | i) | Define the terms : data communication, protocol, network | 03 |
| | | iii) | Compare and contrast radio wave and micro wave transmission media. | 04 |
| | (b) | i) | Define the terms: signal, bandwidth, attenuation | 03 |
| | | ii) | Compare and contrast a circuit-switched network and a packet-switched network. | 04 |
| Q.2 | (a) | i) | Define the term: Shannon capacity. What does the Shannon capacity have to do with communication? | 03 |
| | | ii) | What is PCM? Explain it in detail. | 04 |
| | (b) | | Draw the layered architecture of OSI model and explain the functions of each layer. | 07 |
| OR | | | | |
| | (b) | | Draw the layered architecture of TCP/IP model. List and explain the function of different protocol for each layer. | 07 |
| Q.3 | (a) | | What is CRC? Explain it with example. | 07 |
| | (b) | | List different techniques for digital-to-analog conversion. Explain any two in detail. | 07 |
| OR | | | | |
| Q.3 | (a) | | What is hamming distance? Explain hamming code method of error correction with example. | 07 |
| | (b) | | What is multiplexing? List the multiplexing techniques. Explain any one in detail. | 07 |
| Q.4 | (a) | | What is Ethernet? Explain Standard Ethernet layers in detail. | 07 |
| | (b) | | What is the role of routing algorithm in internetworking? Explain distance vector routing in detail. | 07 |
| OR | | | | |
| Q.4 | (a) | | Write short note on the following : Token Bus, FDDI | 07 |
| | (b) | | List and explain different types of connecting devices in detail. | 07 |
| Q.5 | (a) | | What is line coding? Categories different line coding schemes. Explain any two in detail. | 07 |
| | (b) | | What is topology? Explain different types of network topologies. | 07 |
| OR | | | | |
| Q.5 | (a) | | Explain the different ways of analog- to- analog conversion | 07 |
| | (b) | | Briefly explain the following: LAN, MAN, WAN and Internet | 07 |
