

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. Sem-IV Remedial Examination Nov/ Dec. 2010****Subject code: 141601****Subject Name: Data Communication & Networking****Date: 01 / 12 /2010****Time: 03.00 pm – 05.30 pm****Instructions:****Total Marks: 70**

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

- Q.1** (a) Explain How do the layers of the internet model correlate with the layers of the OSI model **04**
- (b) Explain with the throughput expressions The ALOHA and Slotted ALOHA **04**
Compare the various digital to analog signals conversion mechanisms. Also
- (c) discuss which technique is better. **03**
Calculate the baud rate for the given bit rate of type of given modulation?
- (d) 1) 400bps, FSK **03**
2) 6000bps, ASK
- Q.2** (a) Make a timing diagram and show the differences between manchester encoding and differential manchester encoding for the bit stream 10001011011 **07**
- (b) What are the differences between a port address, a logical address, and a physical address **03**
- (c) Differentiate cable modem and 56K modem **04**
- OR**
- (b) Discuss File Transfer Protocol in detail **03**
- (c) Explain the use of Modem as DTE & DCE **04**
- Q.3** (a) Explain Shannon Capacity and Nyquist Theorem with example **07**
- (b) Explain Token Ring with Token lost situation **03**
- (c) Explain X.25 in detail **04**
- OR**
- Q.3** (a) List and explain the two basic types of ISDN services. Describe channel capacity in B-channel and D-channel and its applications **07**
- (b) Explain Star network topology with device example **03**
- (c) Explain Frame Relay in detail **04**
- Q.4** (a) Construct a systematic (7,4) cyclic code using generator polynomial $g(x)=x^3+x^2+1$. Consider a data vector $d=1001$. **07**
- (b) Explain the following term **07**
1) UDP 2) WDM 3) aperiodic signals
- OR**
- Q.4** (a) What is the purpose of 'Hamming Code'? How the redundant bits are computed for a data unit of m-bits? Explain with example **07**
- (b) Explain the following **04**
1. FDDI
2. Routing devices **03**
- Q.5** (a) Explain Dijkstra's shortest path routing algorithms with example **07**
- (b) Explain the duties of Session and Transport network layers **04**
- (c) Explain the Multiplexing Applications **03**
- OR**
- Q.5** (a) Differentiate Distance Vector and Link State routing algorithms **07**
- (b) Explain the duties of Presentation and Application network layers **04**
- (c) Explain Analog to Analog conversion, **03**
