

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE – SEMESTER – VIII EXAMINATION – WINTER 2016**

**Subject Code: 181101****Date: 21/10/2016****Subject Name: Data Communication and Networking (Department Elective - II)****Time: 02:30 PM to 05:00 PM****Total Marks: 70****Instructions:**

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

- Q.1** (a) (i) What is the difference between a subnet and WAN? Explain WAN. **03**  
(ii) Explain Star topology. **02**  
(iii) Explain Data Link Layer of OSI reference model. **02**
- (b) (i) Explain ATM protocol architecture. **03**  
(ii) Give the comparison between X.25 and Frame Relay **02**  
(iii) Explain physical address and Logical address **02**
- Q.2** (a) Explain Public Switched telephone network in detail. **07**  
(b) Explain HDLC Protocol with modes of operation, Frame structure and Frame types. **07**
- OR**
- (b) Explain the need of sliding window protocol at data link layer. Prove that selective repeat will offer minimum channel overhead as compared to its all other variants. **07**
- Q.3** (a) Explain CSMA/CD and CSMA/CA in detail. **07**  
(b) What is virtual LAN? Explain Virtual LAN configuration and advantages. **07**
- OR**
- Q.3** (a) Explain Bluetooth protocol architecture and list its application. **07**  
(b) Explain traditional Ethernet (IEEE 802.3) frame format. Also define minimum and maximum length frame format for it. **07**
- Q.4** (a) What do you mean by shortest path in computer networking? Explain distance vector routing algorithm. **07**  
(b) What is difference between congestion control and flow control? Explain leaky bucket algorithm. **07**
- OR**
- Q.4** (a) Explain duties of transport layer and also explain that transport layer can be either connectionless or connection oriented. **07**  
(b) What is QoS? Explain any three techniques for achieving good QoS. **07**
- Q.5** (a) Explain RSA algorithm and Transposition cipher in detail. **07**  
(b) Explain basic model of file transfer protocol. Also explain how communication takes place in FTP and transmission mode of FTP. **07**
- OR**
- Q.5** (a) Explain DNS in detail with example. **07**  
(b) What is cryptography? Explain symmetric key algorithm in detail. **07**

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