

**GUJARAT TECHNOLOGICAL UNIVERSITY****B.E. Sem-V<sup>th</sup> Examination December 2010****Subject code: 150702****Subject Name: Computer Network****Date: 15 /12 /2010****Time: 03.00 pm - 05.30 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) Explain the following terms : Jitter , Bandwidth and throughput. **03**  
 ii) Which of the OSI layers handles each of the following : **04**  
 -Determine which route through the subnet to use.  
 -Dividing the transmitted bit stream into frames.  
 -Encryption and compression of the information.  
 -Flow control between source and destination node.
- (b) Classify various transmission media for computer networks, and compare UTP **07**  
 and fiber optic media.
- Q.2** (a) What is framing? Explain the various methods used for carrying out the framing **07**  
 in detail.  
 (b) Write the functions of Media Access Control sub layer. And Compare pure **07**  
 ALOHA and slotted ALOHA.
- OR**
- (b) A bit stream 110101011 is transmitted using standard CRC method . The **07**  
 generator polynomial is  $x^4+x+1$  .Show the actual bit string transmitted.  
 Also Explain the error detecting and correcting code with example.
- Q.3** (a) Explain the one bit sliding window protocol and go back n protocol. Write down **07**  
 the drawback of both the protocols.  
 (b) i) Compare datagram subnet and virtual-circuit subnets. **04**  
 ii) What is the serious drawback of distance vector routing ? explain it with **03**  
 example.
- OR**
- Q.3** (a) Explain wireless LAN protocol and explain hidden station and exposed station **07**  
 problem of it. What is the solutions to this problem. Explain.  
 (b) i) What are the various congestion prevention policies at datalink , network and **04**  
 transport layer of the OSI ?  
 ii) Explain the leaky bucket algorithm. **03**
- Q.4** (a) Explain and compare distance vector routing and link state routing algorithm. **07**  
 (b) Draw IP headed and explain the each field of the header. **07**  
 Also explain the concept of fragmentation in detail.
- OR**
- Q.4** (a) Explain the following concepts : **07**  
 Tunneling , Network address translation and DHCP.  
**Q.4** (b) List the various duties of the transport layer and explain each in brief. **07**  
 Compare UDP and TCP

- Q.5 (a)** How does DNS work? Explain. **07**
- (b)** An organization is granted the block 211.17.180.0/24. The administrator wants to create 32 subnets. **07**
- a) Find the subnet mask.
  - b) Find the number of addresses in each subnets.
  - c) Find the first and last addresses in subnet 1.
  - d) Find the first and last addresses in subnet 32

**OR**

- Q.5 (a)** Explain the e-mail architecture and services. Write short note on POP3 and MIME. **07**
- (b)** Write note on: **07**  
Internet Control Message Protocol (ICMP) , Bridge and Switches.

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