

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII EXAMINATION – SUMMER 2016

Subject Code:181101

Date:07/05/2016

Subject Name:Data Communication and Networking (Department Elective - II)

Time:10:30 AM to 01:00 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) 1. Explain how TCP/IP and OSI Reference Model are different with each other. **07**
2. Explain various network topologies with their advantages and disadvantages.
- (b) Imagine the length of a 10Base-5 cable is 2500 meters. If the speed of propagation in a thick co-axial cable is 60% of the speed of light, how long does it take for a bit to travel from the beginning to the end of the cable? Ignore any propagation delay in the equipment. (Speed of light = 3×10^8 meters / sec) **07**
- Q.2** (a) Give the Classification of network in detail according to the area covered. Also explain each classification of network in detail. **07**
- (b) 1. What does 'negotiation' mean when discussing networking protocols? Give an example. **07**
2. Give the main difference between TCP and UDP.
- OR**
- (b) Give comparison among circuit switching, packet switching and message switching. **07**
- Q.3** (a) The following character encoding is used in data link protocol: **07**
A : 01000111 ; B : 11100011 ; FLAG : 01111110 ; ESC : 11100000
Show the it sequence transmitted (in binary) for four character frame : A B ESC FLAG when each of the following framing methods are used :
1. Flag bytes with byte stuffing.
2. Starting and ending flag bytes, with bit stuffing.
- (b) What is piggybacking? Explain its advantage using an example. **07**
- OR**
- Q.3** (a) Explain sliding window protocol of size 1, with a 3- bit sequence at sender and receiver side. **07**
- (b) What is the major difference between error detecting and error correcting codes? Show how Hamming code is used to correct burst errors. **07**
- Q.4** (a) Explain the channel allocation problem and its solution in detail. **07**
- (b) Write short note on Bluetooth. **07**
- OR**
- Q.4** (a) Explain hidden station problem and exposed station problem in wireless LAN. **07**
- (b) Write short note on Fast Ethernet. **07**
- Q.5** (a) What is congestion? Write congestion prevention policies for network and transport layers. **07**
- (b) Write techniques to achieve good QOS. Explain leaky bucket algorithm. **07**
- OR**
- Q.5** (a) Write short note on DNS. **07**
- (b) Discuss the social issues connected with network security. **07**
