

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI • EXAMINATION – WINTER • 2014

Subject Code: X81101

Date: 28-11-2014

Subject Name: Data Communication & networking

Time: 02:30 pm - 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) Explain the functions of the following layers of OSI model 07
in brief: physical, data link, network
- (c) Compare connection-oriented and connection-less services 07
with suitable examples.

- Q.2 (a) Discuss various guided physical media used for data 07
communication.
- (b) (i) A modem having constellation diagram of QPSK has 04
data points at the following coordinates: (1, 1), (1, -1), (-1,
1), and (-1, -1). How many bps can a modem with these
parameters achieve at 1200 baud?
- (ii) In a typical mobile phone system with hexagonal cells. 03
it is forbidden to reuse a frequency band in an adjacent cell.
If 840 frequencies are available, how many can be used in a
given cell?

OR

- (b) Write a short note on Digital Advanced Mobile Phone 07
System.

- Q.3 (a) Explain the concepts of circuit switching, message 07
switching and packet switching.
- (b) Explain the concepts of Code Division Multiple Access 07
with suitable examples.

OR

- Q.3 (a) Write a brief note on HDLC. 07
- (b) Explain the key assumptions in Dynamic Channel 07
allocation in LAN and MAN.

- Q.4 (a) Write a short note on sliding window protocols. 07
- (b) Write a short note on Point-to-Point Protocol. 07

OR

- Q.4 (a) Write a short note on shortest path routing algorithm 07
- (b) Explain the concept of fragmentation in network layer. 07

- Q.5 (a) Explain the principle of congestion control in network 07
layer.
- (b) Enlist the major goals of IPv6 and explain in brief. 07

OR

- Q.5 (a) Explain the elements of transport layer protocols in brief. 07
- (b) Write short note on MPEG. 07
