MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

SEVENTH SEMESTER B.Tech. (MECHATRONICS) DEGREE
END SEMESTER EXAMINATION
November /December 2016
SUBJECT: COMPUTER NETWORKING AND COMMUNICATION PROTOCOLS
(CSE 451)

TIME: 3 HOURS   **MAX. MARKS: 50**

Instructions to candidates
- Answer **ANY FIVE** full questions.
- Missing data may be suitably assumed.

1A.	With a suitable diagram describe the various layers of the OSI model.	
1B.	Differentiate between infrared, microwave, satellite and radio propagation of signals in terms of their frequencies used and applications.	
		(6+4)
2A.	What are the following types of Ethernet addresses? i. 30:4A:10:21:10:1A ii. 07:30:10:AF:FF:FF iii. A5:10:AA:FF:BA:09 iv. FF:FF:FF:FF:FF:FF	
2B.	Describe the construction of the kind of cable used to connect a cable TV to a d2h service provider.	
		(4+6)
3A.	User A transmits the data 100100 to user B. Perform cyclic redundancy checking on the transmitted data using a divisor of 1101. Further, insert an error in the LSB (i.e. 100100 gets erroneously get transmitted as 100101). Now perform cyclic redundancy checking at User B to show that the error has occurred in the LSB of the data.	
3B.	List the steps of the Bellman Ford algorithm and support your answer with a suitable example.	
		(5+5)
4A.	Assume that you are designing a subnet mask for the 192.168.239.0 network. You require 7 subnets with up to 26 hosts on each subnet. What subnet mask should you use?	
4B.	An average loss of 3.5 dB/km occurs in an optical fiber communication link. Explain the reasons for this loss.	
		(4+6)
5A.	List and explain the various languages in which SNMP protocol is functional.	
5B.	Describe the functions of the edge router/ host in the Differentiated Services model.	
		(5+5)
6A.	Busy hour congestion is the leading contributory factor in outages, marked by 37% of respondents as 'occurring often', 52% as 'rarely' and only 11% as 'never'. As a network engineer suggest some measures to overcome congestion.	
6B.	Give a short note on: i. Agents in SNMP ii. Types of operations in SNMP	
		(5+5)