JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -3 EXAMINATION- DEC 2017
B.Tech VII Semester

COURSE CODE: 10B1WEC731   MAX. MARKS: 35
COURSE NAME: Mobile Communication
COURSE CREDITS: 4   MAX. TIME: 2 Hr

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q1) What are the advantages and disadvantages of wireless local area network over LAN? What are the design goals for wireless LANs? **(4)**

Q2) **(6)**

a) Compare HIPERLAN 1, HIPERLAN 2, HIPERLAN 3 and HIPERLAN 4 in terms of application, frequency band, topology, QoS, Mobility, interface and data rate.

b) What are the characteristics of Bluetooth technology in terms of frequency band, modulation scheme, transmitted power, spreading technique and multiplexing.

c) What are two modes of operation of Bluetooth. Why do we prefer SCO for voice communication?

Q3)

a) Compare Infrared Vs radio transmission. **(5)**

b) Compare Infrastructure Vs ADHOC network.

Q4) **(5)**

a) How do IEEE 802.11, HIPERLAN 2 and Bluetooth, respectively solve the hidden terminal problem?

b) Why is the PHY layer in IEEE 802.11 subdivided? What about HIPERLAN 2 and Bluetooth?

Q5) What are the different logical channels used in GSM? What are they used for? **(5)** Explain the frame hierarchy in a traffic multiframe used in GSM.

Q6) Compare the two modes of UMTS Terrestrial Radio Access (UTRA) i.e UTRA FDD (W-CDMA) and UTRA TDD (TD CDMA). **(5)**

Q7) An urban area has a population of 20 lakh residents. Three competing trunked mobile Networks (system A, B and C) provide cellular service in this area. System A has 394 cells with 19 channels each, system B has 98 cells with 57 channels each, and system C has 49 cells with 100 channels each. Find the number of users that can be supported at 2% blocking if each user averages 2 calls per hour at an average call duration of three minutes. Assuming that all three trunked systems are operated at maximum capacity, compute the percentage market penetration of each cellular provider. **(5)**