JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -2 EXAMINATION- Oct 2017
B.Tech VII Semester

COURSE CODE: 10B1WEC731

COURSE NAME: Mobile Communication

COURSE CREDITS: 4

MAX. MARKS: 25

MAX. TIME: 1 Hr 30 min

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

Q1) Which type of different services does GSM offer ? Give some examples and the reasons why these services have been separated? (2)

Q2) Name the main elements of the GSM system architecture and describe their functions. What are the advantages of specifying not only the radio interface but also the internal interfaces of the GSM system? (4)

Q3) Why is a new infrastructure needed for GPRS, but not for HSCSD? Which components are new and what is their purpose ? (2)

Q4) Why are so many different identifiers/ address needed in GSM? Give reasons and distinguish between user related and system related identifiers. (3)

Q5) Design a 200 X 200 cross bar switch using Clos criteria. Calculate the total number of cross-points. (3)

Q6) What are the reasons for the delays in a GSM system for packet data traffic? Distinguish between Circuit switched and packet oriented transmission. (3)

Q7) A cellular service provider decides to use a digital TDMA scheme which can tolerate a signal-to-interference ratio of 15dB in the worst case and a path loss component of $n = 4$. Find the optimal value of N for
a) Omni-directional Antennas
b) 120^0 sectoring
c) 60^0 sectoring
Should sectoring be used ? if so, which case (60^0 or 120^0) should be used? (4)

Q8) Give reasons for a handover in GSM and the problems associated with it. What are the typical steps for handover, which types of handover can occur ? Which resources need to be allocated during handover for data transmission using HSCSD and GPRS respectively? (4)