Reg. No.									

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

V SEMESTER B.TECH. (INFORMATION TECHNOLOGY/COMPUTER AND COMMUNICATION ENGINEERING)

MAKE UP EXAMINATIONS, JAN 2017

SUBJECT: PROGRAM ELECTIVE I- MOBILE COMPUTING (ICT 4001)

(REVISED CREDIT SYSTEM)

07/01/2017

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

Instructions to candidates

- Answer **ALL** the questions.
- Missing data may be suitably assumed.

1A.	List and explain various transmission impairments associated with the LOS transmission.	5
1B.	Explain the IEEE 802.11 MAC management sublayer in terms of synchronization, power management and roaming.	3
1C.	Explain the concept of piconet and scatternet in detail.	2
2A.	How several users can share a medium with minimum or no interference? Explain the different techniques for this in detail.	5
2B.	Write steps needed for MTC and MOC in GSM with suitable illustrations.	3
2C.	Explain the concept of M-TCP and its drawbacks	2
3A.	Explain any two techniques to improve the coverage area of cellular system.	5
3B.	Find the optimum wavelength and frequency for a half wave dipole of length 10m.	3
3C.	Differentiate between infrastructure and ad-hoc networks.	2
4A.	Draw and explain UMTS network architecture.	5
4B.	Write sequence diagram for handover procedure between inter MSC and intra BSC but inter BTS.	3
4C.	Differentiate between hidden and exposed terminal problem and explain how MACA solves this problem.	2

5A. The following Table Q.5A illustrates the operation of a FHSS system. 5

Table Q.5A FHSS system

Time	0	1	2	3	4	5	6	7	8	9	10
Input data	0	1	1	1	1	1	1	0	0	0	1
Frequency	f1	f21	f11	f3	f3	f3	f22	f10	f0	f0	f2
PN sequence	001	110	011	001	001	001	110	011	001	001	001

Time	11	12	13	14	15	16	17	18	19
Input data	0	0	1	1	1	1	0	1	0
Frequency	f22	f9	f1	f3	f3	f22	f10	f2	f2
PN sequence	110	011	001	001	001	110	011	001	001

i. What is the period of PN sequence?
ii. What is number of bits per symbol?
iii. What is number of FSK frequencies?
iv. What is the length of a PN sequence per hop?
v. Is this a slow or fast FH system?
vi. What is the total number of possible hops?
vii. Show the variation of the dehopped frequency with time.

5B. Draw the sequence diagram for handover in mobile IP from a foreign agent to another foreign agent. 3

5C. What is the role of Net Allocation Vector in IEEE 802.11 networks? Explain. 2