Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institute of MAHE, Manipal

II SEMESTER M.TECH. (COMPUTER NETWORKING AND ENGINEERING)

END SEMESTER EXAMINATIONS, APRIL 2018

SUBJECT: MOBILE COMPUTING [ICT 5201]

REVISED CREDIT SYSTEM
(17/04/2018)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer ALL the questions.
- Missing data, if any, may be suitably assumed.

1A. Explain dynamic source routing with an example. 5

1B. With a neat block diagram, explain the concept of PCM. 3

1C. Show the contents of the five output frames for a synchronous TDM multiplexer that combines four sources sending the following characters. Note that the characters are sent in the same order that they are typed. The third source is silent. 2

i. Source 1 message: HELLO
ii. Source 2 message: HI
iii. Source 3 message:
iv. Source 4 message: BYE

2A. With an example, explain how MACA avoids the problem of hidden and exposed terminal. 5

2B. Discuss the enhancements to the basic client-server architecture in the web? 3

2C. Give the carrier frequency assignments for the 8FSK system which uses f_c = 250 kHz and a bit duration of 6.67 μsec. 2

3A. Mention the advantages of using GSM, explain four possible handover scenarios in GSM. 5

3B. Suppose a transmitter produces 50 W of power. 3

i. Express the transmit power in units of dBm and dBW.
ii. If the transmitter's power is applied to a unity gain antenna with a 900-MHz carrier frequency, what is the received power in dBm at a free space distance of 100 m?

3C. An FHSS system employs a total bandwidth of Ws=400MHz and an individual channel bandwidth of 100 Hz. What is the minimum number of PN bits required for each frequency hop? 2

4A.	With a neat diagram, explain the UMTS core network architecture using 3G RNS and a 2G BSS.	5
4B.	Discuss the techniques used to expand the capacity of cellular system.	3
4C.	Mention advantages and disadvantages that come with Indirect-TCP.	2
5A.	With an example, explain mobile terminated and mobile originated call routing in GSM.	5
5B.	Show that reuse distance D is equal to $(3N)^{1/2}$ R in cellular system.	3
5C.	Explain with an example any two multilevel binary signal encoding methods.	2