



DEPARTMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY

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

MAKEUP EXAMINATIONS, MARCH 2022

SUBJECT: MOBILE COMPUTING [ICT 5173]

REVISED CREDIT SYSTEM

(/03/2022)

Time: 75 + 10 Minutes

MAX. MARKS: 20

Instructions to Candidates:

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

- 1A** Why does *Linda-like* coordination be attractive for programming the *open mobile agent* application? **5**
- 1B** Consider a system with 30 location registrars of flat organization and the cost of accessing all the location registrars is approximately the same. The system maintains 5 replicas for each mobile node. The update operation that starts at the randomly selected location registrar 6 (LR6). Calculate the location registrars at a stride in a wrap-around fashion and list the other location registrar where the replica of LR6 is stored. **3**
- 1C** Why layer 2 security is required in 6LowPAN? Briefly explain. **2**
- 2A** Identify the key problem of spectrum sensing in a *hierarchical cognitive radio system* and explain the proposed solutions to overcome the problem. **5**
- 2B** Consider a base station communicating to the subscriber, with the channel bandwidth of 3 MHz, 10% of guard band, and capacity of the channel is 15 resource blocks. Assume that the subscriber is in a poor signal to the noise ratio, the base station uses the coding rate of 0.877 and BPSK modulation schemes to transmit the data packets to a subscriber. Calculate the throughput of the LTE system. **3**
- 2C** How does the UTRAN controls the overload of UMTS network? **2**