FOHNOL	OGY 22		BG
USN			

18ECS31

The Semester M.Tech. Degree Examination, July/August 2021

LTE 4G Broadband

Time: 3 hrs.

YOHYBY

Max. Marks: 100

Note: Answer any FIVE full questions.

- 1 a. Identify the packet data network gateway to other logical nodes and the main nodes.
  - b. What are the specification responsible working groups for different LTE interface and 3GPP structure? (08 Marks)
  - c. Differentiate between home routed model and local breakout model supported for SAE.

(07 Marks)

- 2 a. With a system architecture, explain 3GPP and non-3GPP access network. (08 Marks)
  - b. What are the limited QoS parameters for the LTE specification? (06 Marks)
  - c. What are user equipment, trusted and Non trusted non-3GPP access network? With an example. (06 Marks)
- 3 a. Explain basic concept of MIMO principles with a 2-by-2 antenna configuration. (06 Marks)
  - b. For a LTE FDD access and frame structure, explain data transmission with resource allocation and PUSCH channel coding chain. (08 Marks)
  - c. Explain the sequence modulator to transmit periodic CQI on PUCCH. (06 Marks)
- 4 a. Explain the principle of mapping logical PUCCH resource blocks onto physical PUCCH resource block. (06 Marks)
  - b. Illustrate the uplink timing uncertainty windows for RACH preamble with considerable Doppler. (06 Marks)
  - c. Explain PDCCH channel coding chain for downlink directions and downlink transmission mode. Using open loop spatial multiplexing operation. (08 Marks)
- 5 a. Discuss the physical layer procedure power control timing advance and Random access in a LTE system. (08 Marks)
  - b. Explain the physical layer measurement related to inter system case. (05 Marks)
  - c. Explain about the downlink direction control information to be carried out in the MAC control elements.
- a. With MAC layer, explain how downlink and uplink channels are mapped with logical and transport channel. (08 Marks)
  - b. Explain different types of RLC mode of operation in acknowledged mode unacknowledge mode. (07 Marks)
  - c. Explain the PDCP layer operations and key functionalities associated with PDCP SDU.

(05 Marks)

## **18ECS31**

(04 Marks)

What is meant by self driven minimization of drive test? Mention the key issues and (07 Marks) functionalities of MDT idle mode. What is an critical extension in RRC extension mechanism. (07 Marks) (06 Marks) Explain about the ANSI.1 types and construct. Illustrate about selection and reselection process in the idle mode mobility. (08 Marks) 8 With a block diagram, explain the signaling procedure during intra-frequency handover. b. (08 Marks) Differentiate between EAUTRAN and UTRAN mobility. (04 Marks) Explain about layer 2 scheduling and link adaptation with HARQ management. (08 Marks) Explain Interworking between packet scheduling Link adaption unit and other uplink RRM. b. (08 Marks) Explain about DRx parameter and their description. (04 Marks) Explain about Downlink budget parameter for LTE. (08 Marks) 10 Explain about uplink system performance for the spectral efficiency. (08 Marks)

Estimate the maximum traffic volume for LTE dimension for 1+1+1 at 20MHz.

b.