

Time: 3 Hrs

Marks: 80

N.B.

- 1) Question number ONE is compulsory.
- 2) Attempt any THREE questions from remaining questions.
- 3) All questions carry equal marks.

Q1

- a) Compare Microcell, Metrocell, Picocell, Femtocell and WiFi in terms of cell radius, power level in watts and number of users. 5
- b) Differentiate between CDMA, TDMA and FDMA 5
- c) Explain services and features of GSM 5
- e) Explain mobility and resource management 5

- Q2 a) Consider a cellular system in which the total available voice channels to handle traffic are 480. The area of each cell is 5 sq.km. and the total coverage area of the system is 3000 sq.km. 10
- 1) For the cluster size of 7, find the no. of channels per cell, no. of clusters, and the system capacity.
  - 2) For the cluster size of 4, repeat the above calculations.
  - 3) Comment on result.

- b) Explain different channel assignment strategies in cellular system. 10

- Q3 a) What is Huygen's principle of diffraction? Explain Knife –edge Diffraction Model. 10

- b) Explain types of Small scale Fading based on multipath time delay spread. 10

- Q4 a) Draw a well labelled diagram and explain in detail the architecture of GSM. 10

- b) Explain the terms related to GSM 10

1. Diagonal Interleaving    2. Ciphering    3. SIM    4. IMSI Number    5. SMS

- Q5 a) Explain IS 95 forward and reverse channels. 10

- b) Explain UMTS network architecture in detail with interfaces 10

- Q6 Write short notes on following 20

- a) Factors influencing Small Scale fading
- b) DSSS and FHSS
- c) Erlang B and Erlang C system
- d) CDMA 2000

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