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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