(3 Hours) [Total Marks : 80

N.B. : (1) Question **no.1** is **compulsory**.
(2) Attempt **any three** questions from remaining **five** questions.
(3) assume suitable data wherever necessary

1. (a) What is coherence bandwidth   **20**
   (b) Explain spread spectrum modulation.
   (c) Explain Foliage loss in propagation.
   (d) Explain how prioritizing in Hand off is done

2. (a) Explain Handoff in 2G, 3G & 4G in detail.   **10**

   (b) A receiver in an urban cellular radio system detects a 1 mW signal at   **10**
   $d = d_0 = I$ meter from the transmitter. In order to mitigate co-channel interference effects, it is required that the signal received at any base station receiver from another base station transmitter which operates with the same channel must be below -100 dBm. A measurement team has determined that the average path loss exponent in the system is $n = 3$. Determine the major radius of each cell if a 7-cell reuse pattern is used. What is the major radius if a 4-cell reuse pattern is used?

3. (a) Explain cellular networks (WMAN) evolution from 1G to 3G.   **10**
   (b) Explain how GPRS architecture handles data call   **10**

4. (a) Why are so many logical channels used in the GSM? Explain GSM channel Structure.   **10**
   (b) Draw and explain 3GPP L TE architecture   **10**

5. (a) Explain RPE-LTP speech coder as used in GSM.   **10**
   (b) Explain IMT 2000 family   **10**

6. Write short note on.(any two)   **20**
   (a) Problems in SDR communications
   (b) Multiantenna technologies
   (c) Rake receiver