[3HRS]   MAXIMUM MARKS 80

1. Question no.,1 is compulsory.
2. Write any three questions from remaining five questions.
3. Assume suitable data where ever necessary.
4.Draw diagrams wherever required.

1. a] Define and explain following terms
   i) Coherence Bandwidth ii) Coherence time iii) Doppler spread   05

b] Why 120degree sectorization is preferred over 60degree sectorization in cellular
technology.discuss in detail with reference to S/I calculations and handoffs   05

C] What is OVSF in WCDMA what is its advantage over fixed spreading
IS95   05

d] What is timing advance in GSM explain in detail   05

2 a Discuss the various types of Handoffs from 2G to 4G with reference to
technologies.   10
  B   How is the cell search and synchronization achieved in 3G?
10

3. a] Draw and explain 3G reference architecture   10

   b] For a Rayleigh fading signal, compute the positive going level crossing rate for
      $\rho=1$. The maximum Doppler frequency (fm) is 20 Hz. What is
      the   maximum   velocity of the mobile for this Doppler frequency if
      the carrier frequency is 900 MHz?   10

4.a] Draw and explain protocol architecture of
GPRS   10

   b] Compare OFDMA and MC-CDMA
techniques.   10

   5. a] Explain RPE- LTP speech coder in
GSM   10
     b] What is the software-defined radio
system?   10

6. Write short note on (any
two)   20
    a] Cognitive Transceiver Architecture
    b] Spreading codes used in CDMA
    c] Adaptive multi antenna Techniques