

N.B. (1) Question no. 1 is compulsory.

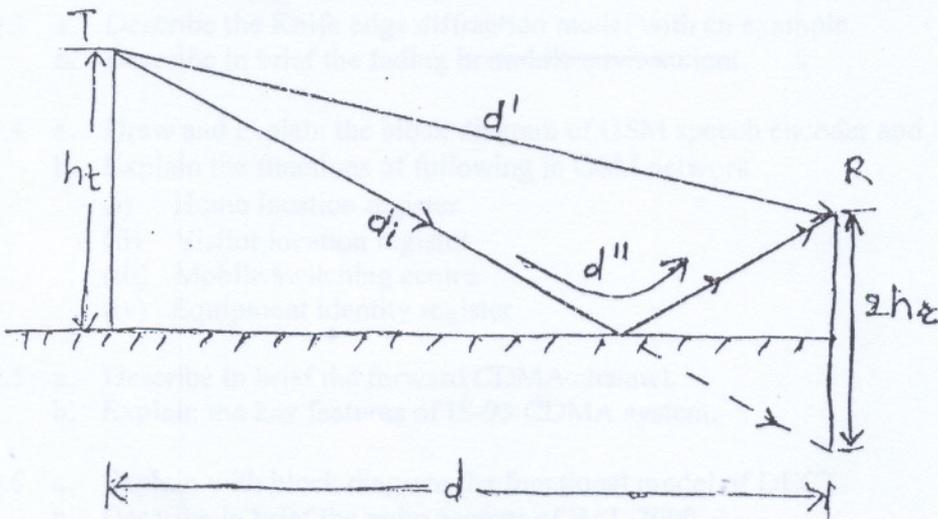
(2) Solve any four questions from remaining.

(3) Assume suitable additional data whenever necessary.

1.
 - a) Explain features of Globalstar mobile satellite system.
 - b) What is pilot PN sequence? Why is zero-offset Pilot PN sequence used in reverse IS-95 channel modulation process and offset Pilot PN sequence in forward IS-95 channel modulation process?
 - c) What is cell dragging?
 - d) Describe the maximum and minimum spectral frequencies received from a stationary GSM transmitter that has center frequency of 1950 MHz, assuming that the receiver is traveling at speed of 5 Km/hr. (20)

2.
 - a) Explain with neat block diagram signal processing in AMPS system. What is the purpose of SAT and DCC? (10)
 - b) Explain following with respect to GSM system- (10)
 1. Hyper. frame
 2. Interleaving
 3. Authentication Center
 4. Broadcast control channel

3.
 - a) Explain different processes with timing diagram when call is initiated from landline and terminates on GSM phone. (10)
 - b) In a two ray ground reflected model, assume that θ_Δ is less than 6.261 radians for phase cancellation reasons. A receiver height is 2 meter. θ_i is less than 5° . What are the minimum allowable values for the T-R separation distance and the height of the transmitter antenna? The carrier frequency is 900 MHz. (10)



- 4 a) Sketch block diagram of reverse IS-95 channel modulation process for a single user. Explain function of each block. (10)
b) Compare PHS, CT2 and PACS. (10)
5. a) A cellular service provider decides to use a digital TDMA scheme which can tolerate S/I ratio of 15 dB in the worst case. Find the optimal value of N for 1) Omnidirectional antennas, 2) 120° sectoring and 3) 60° sectoring. Should sectoring be used? If so, which case (60° or 120°) should be used? (Path loss exponent = 4) (10)
b) Explain network architecture for Iridium system. Whether satellites in successive orbits in this system rotate in opposite direction to each other? Why? (10)
6. a) Discuss IMT 2000 System. (10)
b) How source coding and channel coding is utilized in IS -95? (10)
7. Write short notes (Any Four) (20)
a) DECT
b) Doppler spread
c) Knife edge diffraction model
d) Rake receiver
e) Paging channel and Access Grant channel in GSM.