

(3 Hours)

[Total Marks :80

- N.B. : (1) Question No. 1 is compulsory.
(2) Attempt any three questions out of the remaining five questions.
(3) Assume suitable data wherever needed.

1. Answer any four of the following:

- (a) What is meant by term umbrella cell and micro-cell in a cellular systems. 5
(b) A large city with an area of 1500 km² is needed to be covered by a finite number of cells with a radius of 2km each. How many cell sites would be required assuming regular hexagonal shaped cells? 5
(c) Differentiate between CDMA, TDMA and FDMA. 5
(d) Explain the different handoff strategies from 1G to 3G. 5
(e) What is RFID and what is the difference between active and passive RFID tags? 5

2. (a) Explain the GSM network architecture with a neat block diagram. 10
(b) What is frequency reuse? How does it influence the co-channel interference? What is the advantage of frequency reuse? 10

3. (a) A spectrum of 30 MHz is allocated to a wireless FDD cellular system which uses two 25 kHz simplex channels to provide full duplex voice and control channels. Compute the number of channels available per cell if a system uses, a) four cell reuse, b) seven cell reuse, c) 12 cell reuse and d) 13 cells reuse. 10
(b) Compare GSM and CDMA technologies. 10

4. (a) Explain IS-95 forward and reverse channels. 10
(b) What is WCDMA air interface? Give important parameters of it. 10

5. (a) Describe UMTS technology with a neat block diagram. 10
(b) Write a detailed note on LTE. 10

6. Write short notes on any four of the following:

- (a) Wireless sensor networks 5
(b) Speech coding in GSM 5
(c) Mobile IP 5
(d) iMT 2000 5
(e) WiMax 5
