

GUJARAT TECHNOLOGICAL UNIVERSITY
M. E. - SEMESTER – I • EXAMINATION – SUMMER • 2014

Subject code: 710601N**Date: 24-06-2014****Subject Name: Wireless and Mobile Communication****Time: 02:30 pm - 05:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 (a) Draw the block diagram of GSM network Architecture indicating main subsystems and its components and explain in Detail. **07**

(b) Prove that the Co Channel Interference is a function of D/R. Where D is the distance between centres of nearest Co Channel Cells and R is the centre to Vertex Distance in Hexagonal Cell Geometry. **07**

Q.2 (a) Describe the various types of Channels used in GSM. **07**

(b) Explain a typical Call Flow sequence in GSM. **07**

OR

(b) Discuss the different upgrade paths for Evolution of 2.5 G GSM standards. **07**

Q.3 (a) What is Cellular concept? How it is utilized to improve the capacity of Mobile Communication System? **07**

(b) Discuss the advantages of CDMA technology. Why orthogonal codes are used in CDMA mobile? **07**

OR

Q.3 (a) Compare soft handoff with hard handoff. **07**

(b) What is Bluetooth? Discuss Bluetooth Standard. **07**

Q.4 (a) Explain briefly BPSK modulation with neat sketch. **07**

(b) What is spread spectrum system? What are the criteria for spread spectrum system? Draw and explain block diagram of direct sequence spread spectrum (DSSS) system. **07**

OR

Q.4 (a) Describe the QPSK Transmission and Detection Techniques. What is the advantage of Offset QPSK (OQPSK) over QPSK. **07**

(b) Explain in detail the Authentication and Encryption process in GSM. **07**

Q.5 (a) What is MSK? How one achieves GMSK? Explain why GMSK is used in GSM **07**

(b) What are the different types of Small Scale Fading mechanisms? Explain each type with necessary equations. **07**

OR

Q.5 (a) Explain in detail the Authentication and Encryption process in GSM. **07**

(b) Describe the propagation path loss for a mobile-radio environment over smooth terrain and derive the expression for E_r the Reflected Electric Field in terms of the incident field. **07**
