

Exam.Code:0937  
Sub. Code: 6372

1078  
**B.E. (Electrical and Electronics Engineering)**  
**Seventh Semester**  
**Elective – I**  
**EE-709 (b): Wireless Communications**

Time allowed: 3 Hours

Max. Marks: 50

*NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.*

x-x-x

- I. Attempt the following:-
  - a) Which logical channel is mainly responsible for establishment of a call in GSM?
  - b) Why different convolution coding rates are used in Forward & Reverse channel of CDMA?
  - c) What is hard handoff?
  - d) What is Doppler spread?
  - e) Why OMSK modulation scheme was selected instead of QPSK in GSM?
  - f) What is coherence bandwidth?
  - g) What is channel coding?
  - h) What is TDD?
  - i) What is cell dragging?
  - j) What is common channel signaling? (10x1)

**UNIT – I**

- II. a) What is wireless communication system? Discuss recent trends in cellular radio and personal communications.
- b) What is EDGE technology? How is it different from HSCSD & GPRS? (5,5)
- III. a) What is Wireless Local Loop? List its applications.
- b) Write a technical note on LTE standards. (5,5)
- IV. a) What is co-channel interference? How it affects the system capacity?
- b) What are spread spectrum modulation techniques? (5,5)

P.T.O.

**Sub. Code: 6372**

(2)

**UNIT - II**

- V. a) What is ISDN? Explain it with the help of block diagram.  
b) Compare wireless & fixed telephone networks with suitable examples.  
c) In US AMPS, 416 channels are allocated to various cellular operators. The channel between them is 30 kHz with the guard band of 10 kHz. Calculate the spectrum allocation given to each operator. (5,3,2)
- VI. a) What are multiple access techniques?  
b) If GSM uses a frame structure where each frame consists of eight time slots, and each time slot contains 156.25 bits, and data is transmitted at 270.833 kbps in the channel, find (i) the time duration of a bit, (ii) time duration of a slot, (iii) how long must a user occupying a single time slot wait between two successive transmissions.  
c) With neat block diagram explain how RAKE receiver provides diversity to improve the performance of CDMA receiver? (2,3,5)
- VII. a) Explain GSM Architecture in detail.  
b) Discuss various GSM Burst structures for logical channels. (5,5)

x-x-x