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Roll No.....

EC-602

B.E. VI Semester

Examination, December 2012

Cellular Mobile Communication

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks :35

Note : Attempt one question from each Unit. All questions carry equal marks.

UNIT-I

1. a) Explain the operational limitations of conventional mobile telephone systems.
- b) What is the propagation attenuation? Derive the expression for received carrier power

$$C = 10 \log \alpha - 10 \gamma \log R$$

where α is constant, γ is propagation path loss slope and R is distance between transmitter and receiver in real mobile radio environment.

OR

- 2) a) Why re-use principle is used in GSM system. Give the example of frequency reuse pattern and writes its advantages.
- b) Why sectorization of cell in GSM system is very important. Write its advantages.

UNIT-II

- 3) a) Determine the carrier-to-interference ratio C/I in a directional antenna system. (a) worst case in a 120° directional antenna system ($K=7$) (b) worst case in a 60° directional antenna system ($K=7$).
- b) What will be the effects on co-channel interference if the antenna height is lowering on a high hill and in a valley?

OR

- 4) a) Explain the interference effect on Near-End Mobile Units.
- b) Explain the long distance Interference over water path and over land path.

UNIT-III

- 5) a) Discuss the Propagation in Near-in Distance in detail.
- b) Describe the Lee's point-to-point model and write down their merit.

OR

- 6) a) Draw equivalent circuit of a transmitting and receiving antennas and explain in terms of pointing vector, receiving and transmitting power.
- b) Find the transfer function of the propagation channel of Mobile-to mobile Propagation.

UNIT - IV

- 7) a) What is the Frequency Management? How to numbering the channels and Grouping into subsets.

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- b) What is the Sectorization in Fixed Channel assignment?
Compare nonsectorized cells and sectorized calls.

OR

- 8) a) Explain Delaying a Handoff and Forced Handoffs.
- b) What do you mean by dropped call rate? Give the relationship among capacity, voice quality, and dropped call rate.

UNIT - V

- 9) a) Draw the GSM architecture and explain each subsystem.
- b) Explain GSM channel and channel modes.

OR

- 10) a) What is the call processing of mobile station in CDMA system.
- b) Explain following
 - i) Cordless phone
 - ii) Mobile satellite communication.
