

Total No. of Questions :10]

[Total No. of Printed Pages :3

www.rgpvonline.in

Roll No.....

**EC-602**

www.rgpvonline.in

**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  $\alpha$  is constant,  $\gamma$  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  $120^\circ$  directional antenna system ( $K=7$ ) (b) worst case in a  $60^\circ$  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.

[3]

- 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.

\*\*\*\*\*