

EC-602
B.E. VI Semester
Examination, June 2015
Cellular Mobile Communication

Time : Three Hours

Maximum Marks : 70

- Note:** i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
ii) All parts of each questions are to be attempted at one place.
iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.
iv) Except numericals, Derivation, Design and Drawing etc.

Unit - I

1. a) Describe a basic cellular system and discuss its performance criteria.
b) Discuss the components of a cellular system?
c) Write short notes on:
i) Cell Sectoring
ii) Cell Splitting
d) What is the need for frequency reuse? Explain the frequency reuse concept and show that $N = i^2 + ij + j^2$. Where N is the number of cells per cluster?

OR

Discuss and derive the expression for co-channel interference reduction factor.

Unit - II

2. a) What are the three basic propagation mechanics? When do they occur?
b) Explain how to obtain mobile point to point model?
c) Discuss the effect of cell site antenna heights and visualization of signal coverage cells.
d) What are different types of cell site and mobile antenna? Explain.

OR

Discuss the propagation over water or flat area between fixed stations.

Unit - III

3. a) What is Antenna? List the types of antennas.
b) Write short notes on Umbrella-pattern effect.
c) Describe the diversity receivers.
d) Explain co-channel interference and how it affects the system capacity. Derive expression for signal to interference ratio.

OR

Discuss various types of non-co-channel interference. Also explain the effect on coverage and interface by applying power decrease and antenna height decrease.

Unit - IV

4. a) Define forced handoff.
b) Define the term frequency management.
c) Describe the various aspects on fixed and non-fixed channel assignment.

- d) What is Handoff? Explain the concept of Handoff with suitable diagram.

OR

Discuss the traffic load on a set up channel and on voice channels. What do you understand by channel assignment?

Unit - V

5. a) Describe non cellular system.
b) Define Cordless phone.
c) Explain the concept of Mobile Satellite communication.
d) With suitable block diagram explain the GSM system.

OR

Describe code division multiple accessing. Why power management is required in CDMA system? Write mechanism to do so.
