

**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.

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