

Code: EC7T3

IV B.Tech - I Semester – Regular Examinations – October - 2017

**CELLULAR AND MOBILE COMMUNICATIONS
(ELECTRONICS & COMMUNICATION ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

PART – A

Answer *all* the questions. All questions carry equal marks

11 x 2 = 22

1.

- a) What are the disadvantages of conventional mobile telephone systems?
- b) What is call termination; list any four causes of it?
- c) How would you describe basics of ground incident angle and ground elevation angle?
- d) List the different components at Cell site.
- e) What are the high gain antennas and draw the radiation pattern of such antennas?
- f) Briefly explain micro cells.
- g) Explain the concept of cell splitting.
- h) What is handoff invitation, where is it used?
- i) How the interference is different from noise in a cellular system?
- j) Draw the frame structure for GSM.
- k) What is the importance of GSM control channels?

PART – B

Answer any **THREE** questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) What is the reason for having a hexagonal shape to the cell in a cellular mobile radio systems? 8 M

b) Derive the expression for carrier-to-interference ratio in a cellular system for normal case with an omni-directional antenna. 8 M
3. a) Explain the mobile radio propagation over water and flat open area and write the general expression. 8 M

b) Discuss various issues of statistical models for multipath fading channels. 8 M
4. a) What are directional antennas? Explain directional antennas for interference reduction in detail. 8 M

b) How can a high gain broadband umbrella pattern antenna be constructed for cell site? Explain. 8 M
5. a) What is forced handoff? Explain different types of forced handoffs. 8 M

b) What is the difference between fixed channel assignment and non fixed Channel assignment? 8 M

6. a) Write about the channel modes of GSM. 8 M

b) Describe the features and services of GSM. 8 M