

Code: EC7T3

**IV B.Tech - I Semester – Regular/Supplementary Examinations
JANUARY 2022**

**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 M

1.

- a) Why mobile cells are arranged in hexagonal shape?
- b) Define C/N ratio.
- c) Mention the causes of signal fading in multipath propagation.
- d) Name various diversity techniques.
- e) Mention the causes of co-channel and non co-channel interferences.
- f) Highlight the advantages of omni directional antenna in mobile propagation.
- g) Why Directional antennas used for interference reduction?
- h) What is Handoff?
- i) Write about Micro cell concepts.
- j) Highlights the functions of GSM control channels.
- k) List the GSM channel types.

PART – B

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

3 x 16 = 48 M

2. a) Describe about the performance criteria of the cellular mobile radio. 8 M
- b) Demonstrate the frequency reuse concept in cellular mobile radio systems. 8 M
3. a) Explain about Statistical Models for Multipath Fading Channels. 8 M
- b) Derive the expression for Ground incident angle and ground elevation angle in flat and hilly terrain. 8 M
4. a) With suitable sketch explain the Measurement of co-channel interference. 8 M
- b) Analyse the requirements of Minimum separation in cell site antennas. 8 M
5. a) Discuss about Sectorization, overlaid cells concept with required diagrams. 8 M
- b) Summarize about the various mobile assigned handoff strategies. 8 M
6. a) Draw and explain the GSM radio subsystem. 8 M
- b) Elaborate about GSM Traffic channels and GSM Control channels. 8 M