Code: EC7T3

IV B.Tech - I Semester – Regular/Supplementary Examinations
March - 2021

CELLULAR AND MOBILE COMMUNICATIONS
(ELECTRONICS & COMMUNICATION ENGINEERING)

Duration: 3 hours   Max. Marks: 70

PART – A

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

$$11 \text{ x } 2 = 22 \text{ M}$$

1.
   a) What is the operation of a mobile radio?
   b) Discuss the uses of hexagonal cells.
   c) Define Interference reduction factor.
   d) Explain path loss.
   e) What is the use of repeaters?
   f) A metropolitan area of 1000Sq. mts is to be covered by cells with a radius of 2 Km. How many cell sites are required if the structure uses hexagonal cells?
   g) What is channel sharing?
   h) Explain internal handoff.
   i) Explain FDMA scheme used in GSM.
   j) What are the advantages of GSM mobile system?
   k) Cite the uses of High gain antenna system in mobile communication.

PART – B

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

$$3 \times 16 = 48 \text{ M}$$

2. a) Draw the frequency spectrum and Discuss the applications of various frequency bands.   8 M

  b) Explain Trunking efficiency in a mobile environment. 8 M

3. a) What is the effect of fading in a mobile network and explain how to reduce the fading effect in the mobile network.   8 M

  b) Explain the statistical models for multipath fading.   8 M

4. a) Explain briefly about co-channel interference and reduction measurements.   8 M

  b) Explain how directional antennas reduce interference in a mobile network.   8 M

5. a) Explain channel sharing and borrowing in a mobile network.   8 M

  b) Explain the process of Handoff and different types of handoffs in mobile communication systems.   8 M

6. a) What is GSM and explain the architecture of GSM System.   8 M

  b) What are the multiplexing techniques used in GSM Traffic management?   8 M