Roll No. | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 08

M.Tech.(ECE) (Sem.–1)

WIRELESS AND MOBILE COMMUNICATION

Subject Code : MTEC-102-18

M.Code : 75173

Date of Examination : 14-01-23

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1.Attempt any FIVE questions out of EIGHT questions.

2.Each question carries TWELVE marks.

1. a) What is Cell splitting? What are the advantages of Cell splitting? Distinguish between Permanent splitting and Dynamic splitting.

   b) What is adjacent channel interference? Discuss different methods of adjacent channel interference reduction and cell coverage improvisation.

2. a) Explain the frame format of GSM system. How data encryption is performed in GSM system?

   b) Discuss the frequency management of GSM system. Explain the call process in GSM system.

3. a) How multiple access techniques used in a cellular communication for resource allocation? Compare CDMA and FDMA in detail.

   b) Explain in detail about how a call initiated by a landline subscriber to a mobile subscriber is established with the help of timing diagram.

4. With the help of two-ray ground reflection model, derive the expression of electric field (E) and power received (P_r) at distance ‘‘d’’ from the transmitter in terms of transmitting and receiving antenna gain, height and transmitted power ‘‘Pt’’.

5. a) Define *rms* delay spread and excess delay spread of multipath fading channel. How coherence bandwidth depends on these time dispersion parameters?

b) Distinguish between Flat fading and Frequency selective fading on the basis of different multipath parameters. Explain Rician fading channel model.

6. a) How receiver diversity is helpful in mitigating the effects of multipath fading? Explain equal gain combining technique in detail.

b) Classify different equalization techniques used in wireless communication system. Explain zero forcing equalization in detail.

7. a) Explain the specification and features of GPRS system.

b) Explain the forward link and reverse link operation of IS-95 CDMA system.

8. Write a short note on :

a) CDMA 2000

b) LTE and VoLTE

c) Okumura-Hata channel model.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.