



Code No. : 5153/S

FACULTY OF ENGINEERING

B.E. 4/4 (ECE) I Semester (Suppl.) Examination, June 2012

MOBILE CELLULAR COMMUNICATION

Time : 3 Hours]

[Max. Marks : 75

**Instructions :** Answer all questions from Part – A. Answer any five questions from Part – B.

**PART – A (25 Marks)**

1. What is digital cellular standard (IS-95) ? Explain. 3
2. How 'paging system' can be defined as an example of wireless communication system ? 2
3. Write short note on TDMA technology. 2
4. Calculate Signal-to-Interference (S/I) ratio for 7 co-channel system in an ideal case. 3
5. Discuss, how reflection, diffraction and scattering mechanisms effect the propagation in cellular mobile communication. 3
6. Explain the advantages of CDMA over FDMA. 2
7. What is the effect of 'Partition Losses' (on same floor), in mobile radio propagation ? 2
8. Expand the following terms : 2
  - a) FPLMTS
  - b) ETACS
9. Explain the architecture of GSM briefly. 3
10. What are the advantages of WLL and how does it work ? 3



**PART – B**

**(10x5=50 Marks)**

- 11. Explain various GSM channel types, their functions and call handling in GSM. **10**
- 12. a) What is co-channel interference and co-channel interference reduction factor? **5**  
b) Derive the expression for system capacity and discuss any one method to improve the system capacity. **5**
- 13. a) Discuss Okumura model of outdoor propagation model. **4**  
b) What is partition loss between floors and Ericson multipoint breakpoint model? **6**
- 14. a) How does bluetooth technology works? What are its features? **5**  
b) Give a comparison between conventional telephone system and cellular telephone system. **5**
- 15. a) Explain CDMA techniques as applied to wireless communications. **5**  
b) Explain various reservation protocols in detail. **5**
- 16. a) Derive an expression for received power  $P_r$  using free space propagation model. **5**  
b) What are the upgraded features of 2.5 G over 2G? Explain the new features added in 3G. **5**
- 17. a) What are the types of small-scale fading? **6**  
b) Explain Carrier Sense Multiple Access (CSMA). **4**