Reg. No. ☐☐☐☐☐☐☐☐☐☐

**ELH 503**

**Third Semester M.Sc. Degree Examination, Dec. 2018/Jan. 2019**
**(CBCS Scheme)**
**ELECTRONICS**
**Wireless Communication Systems**

Time : 3 Hours                                                                 Max. Marks : 70

## PART – A

Answer **all** questions.                                                          **(5×2=10)**

1. a) Define the terms :
     i) Mobile station
     ii) Cell Cluster.

   b) Design a cluster cell for the values i = 1, j = 2 and for i = 2, j = 2.

   c) What is cellular frequency reuse ? Why it is adopted in wireless communication ?

   d) Define different types of multiple access techniques used in wireless communication.

   e) Compare wireless networks and fixed telephone networks.

## PART – B

Answer **any 3 full** questions :                                                 **(3×20=60)**

2. a) Define simplex half duplex and full duplex systems.                                    **5**

   b) With the help of flow diagram, illustrate how a call to mobile user in initiated by a landline.                                                                               **10**

   c) Write a note on paging system with diagram.                                            **5**

                        OR

3. a) Explain wireless generation technologies.                                              **10**

   b) With neat diagram, explain wireless local loop and LMDS.                               **10**

4. a) If a total of 33 MHz of bandwidth is allocated to a particular FDD cellular telephone system which uses two 25 KHz simplex channels to provide full duplex voice and control channels, compute the number of channels available per cell if a system uses :

   i) 4 cell reuse

   ii) 7 cell reuse

   iii) 12 cell reuse. **10**

  b) Explain proper and improper handoff situations of cell boundaries, with neat diagram. **10**

              OR

5. a) Derive the expression for power, which relates to electric field in mobile communication. **10**

  b) Write a note on free space propagation model. **10**

6. a) Explain TDMA technique and its frame structure. **5**

  b) In US Amps, the cellular operator is allocated 12.5 MHz for each simplex band, if $B_t$ = 12.5 MHz and $B_{guard}$ = 10 KHz and $B_c$ = 30 KHz. Find the number of channels available in an FDMA system. **5**

  c) Write a note on Packet Radio. **5**

  d) Compare SDMA and SSMA technique. **5**

              OR

7. a) With neat diagram explain Integrated Service Digital Network (ISDN). **8**

  b) Describe the cell format of asynchronous transfer mode with diagram. **6**

  c) Explain network architecture of UMTS. **6**

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