distance of 10 km in a dense urban mobile Environment, using Hata propagation path loss model. If the free space propagation path loss is 110.5 dB for the given system parameters, how is Hata propagation path loss comparable with that of free space propagation path loss ? **7.5**

4. (a) How does frequency reuse increase spectrum efficiency in a cellular system ? Explain it with the help of suitable example which compares a cellular mobile system with a conventional mobile system. **7.5**

(b) Compare fixed channel assignment, dynamic channel assignment and hybrid channel assignment schemes used in cellular systems ? Explain. **7.5**

Unit III

5. Describe the functions of MS and SIM. Why does the GSM separate MS and SIM ? How

No. of Printed Pages : 06 **Roll No. .....**

CC-61

M. Tech. EXAMINATION, Dec. 2018

(Third Semester)

(B. Scheme) (Main & Re-appear)

(ECE/Industry Integrated)

MTEC601B

ADVANCED WIRELESS COMMUNICATION SYSTEM

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks. Assume any data, if missing.

Unit I

1. (a) Prepare the list of all the existing communication systems used in everyday life. Out of these, find out which are wired and which are wireless and then prepare a list of the existing wireless systems and the associated standards along with their modulation schemes, bit rate and frequency range of communication ? **7.5**

(b) Compare wired and wireless communication and find out why a high bit rate is the problem of wireless link and not of the wired link. When does a wired link have the problem of higher bit rate ? How can you say that wireless digital communication exhibits interdisciplinary approach ? **7.5**

2. (a) Explain the key differences between 1G, 2G, 2.5G, 3G and 4G mobile communication standards. **7.5**

(b) Explain how a wireless LAN can be used in a classroom. Describe how wireless networks can reduce installation time and cost. **7.5**

Unit II

3. (a) A wireless communication base station transmits 10 watts of power at a carrier frequency of 1GHz. If the receiver station is at a distance of 1.6 km from the base station, then determine : **7.5**

(i) The propagation path loss (in dB) in a free space environment

(ii) The received signal power (in dB)

(iii) The transmission delay in ns.

Assume that the transmitter and reciever antenna gains are 1.6 each.

(b) Determine the propagation path loss for a radio signal at 800 MHz with a transmitting antenna height of 30 m and a receiver antenna height of 2 m, over a

and where is user related data represented/ sotred in the GSM system ? How is the user data protected from unauthorized access, expecially at the air interface ? **15**

6. Describe the IS-95 architecture and compare it with the GSM architecture. Give at least *five* functions where CDMA is different from GSM. Why does power control become one of the main issues for the efficient operation of CDMA ? **15**

Unit IV

7. Explain mobile TCP. How does a supervisory host send TCP packets to the mobile node and to a fixed TCP connection ? What information is stored on RFID tags ? Compare the usefulness of WLANs, WPANs and WMANs. **15**

8. Write technical notes on any *two* of the following : **15**

(a) Intelligent Cell Concept and its applications

(b) Working of Advanced Intelligent Networks

(c) Integrated Services Digital Network.