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P.E.S. College of Engineering, Mandya - 571 401
(An Autonomous Institution affiliated to VTU, Belgaum)
Eighth Semester, B.E. – Computer Science and Engineering
Semester End Examination; June - 2016
Wireless Technology

Time: 3 hrs   *Max. Marks: 100*

Note: *Answer any **FIVE** full questions, selecting at least **TWO** full questions from each part.*

PART - A

1 a.	Describe 3G Cellular system characteristics by cell size and mobile speed.	10
b.	With a neat diagram, explain the software view of a cellular system.	10
2 a.	Consider the following case :	8
	A service provider wants to provide cellular communications to a particular geographical area. The total bandwidth the service provider is licensed for is 5 MHz each system subscriber requires 10 kHz of bandwidth when using the system. If the service provider was to provide coverage from only one transmitter site, the total theoretical number of possible users is 500. If, however the service provider implements a cellular system with thirty five transmitter sites, located to minimize interference and provide total coverage of the area, determine the new system capacity.	
b.	A total of 33 MHz bandwidth is allocated to a FDD system with two 25 kHz simplex channels to provide full duplex voice and control channels. Compute the number of channels available per cell if the system uses, i) 4 cell ii) 7 cell iii) 8 cell reuse technique. Assume 1 MHz of spectrum is allocated to control channels. Give a distribution of voice and control channels.	9
c.	State any three capacity expansion techniques used in cellular system.	3
3 a.	Discuss the different services provided by GSM technology and GSM timeslot in a TDMA frame.	10
b.	Explain the functions of the GSM logical channels.	7
c.	List the various GSM identities.	3
4 a.	With a neat diagram, describe the packet core network architecture of CDMA and Network interface architecture of CDMA.	10
b.	Explain the forward channel structure of CDMA 2000.	10

PART - B

5 a. Describe the comparison features of various spread spectrum techniques.   10

   b. Determine;

     i) The peak frequency deviation

     ii) Minimum bandwidth   10

     iii) Band for a binary FSK signal with a mark frequency of 49 kHz, a space frequency of 51 kHz, and an input bit rate of 2 kbps.

6 a. Distinguish between WLAN and WPAN.   6

   b. Write a short note on Blue tooth core protocols.   6

   c. Explain the different functions of logical link control and adaption protocol.   8

7 a. Explain the advantages and disadvantages of broad band satellite system.   10

   b. Describe the different technical challenges forced by broadband satellite system.   10

8.   Write short notes on :

     i) 4G wireless characteristics.

     ii) Wireless Semiconductor Technology.   20

     iii) IEEE 802.20

     iv) Applications of MIMO technology.

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