Code No: 07A80404     **R07**     **Set No. 2**

**IV B.Tech II Semester Examinations,April/May 2012**
**WIRELESS COMMUNICATIONS AND NETWORKS**
**Common to Electronics And Computer Engineering, Electronics And**
**Telematics, Electronics And Communication Engineering**
Time: 3 hours                Max Marks: 80
Answer any FIVE Questions
All Questions carry equal marks
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1. (a) Discuss the historical overview of wireless communications.

   (b) Illustrate the wireless communication network with a neat diagram.    [8+8]

2. Explain the following:

   (a) BTMA (busy tone multiple access)

   (b) CSMA (CSMA with collision detection)

   (c) DSMA (data sense multiple access)

   (d) RAMA (resource auction multiple access).             [16]

3. (a) What are the major requirements of wireless LANs?

   (b) Discuss about the configuration and transmission issues of spread spectrum wireless LANs?             [8+8]

4. (a) Name the four states that a Bluetooth terminal can take and explain the difference among these states?

   (b) Name the three classes of applications that are considered for Bluetooth technology and identify those which can also be 802.11 and HIPERLAN WLAN technologies?             [8+8]

5. Name mechanism to improve web access for hand held devices. What is their common problem and what led finally to the development of WAP?    [16]

6. (a) Discuss WAP architecture with neat schematics

   (b) Explain the following protocols in CDPD:

      i. Mobile data link protocol (MDLP).
      ii. Radio resource management protocol (RRMP).           [8+8]

7. (a) What is the relation between master and slave in a pico net?

   (b) List the undesirable propagation characteristics with millimeter wave systems?             [8+8]

8. (a) What are the differences between the air interfaces of GPRS and CDPD?

   (b) Describe about short message servicing?           [8+8]

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Code No: 07A80404        $\boxed{\textbf{R07}}$        $\boxed{\textbf{Set No. 4}}$

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**WIRELESS COMMUNICATIONS AND NETWORKS**
**Common to Electronics And Computer Engineering, Electronics And**
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Time: 3 hours                                                Max Marks: 80
**Answer any FIVE Questions**
**All Questions carry equal marks**
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1. (a) Discuss the different classes of service provided by SSCP in SS7 signaling.

   (b) Discussing the signaling load for call setup and Hand Off(handled by SS7)
       mechanisms.                                                           [8+8]

2. (a) Discuss about mobility management in wireless ATM?

   (b) Explain the general difference between the packet format of the ATM and
       wireless ATM?                                                         [8+8]

3. Draw the system architecture for GPRS and explain?                        [16]

4. (a) What are the different states and modes occupied by a Bluetooth device?

   (b) Write the packet format for the connectionless service of the L2CAP.   [8+8]

5. (a) When would each of the three transaction classes be used?

   (b) List and briefly define the security services provided by WTLS.        [8+8]

6. Write about the following:

   (a) IEEE802.11a

   (b) IEEE802.11b.                                                           [8+8]

7. (a) Mention the key differences between first and second generation cellular sys-
       tem.

   (b) Discuss the advantages of using CDMA for a cellular network.           [8+8]

8. (a) Mention the salient features of TDMA

   (b) Consider global system for mobile, which is a TDMA / FDD system that uses
       25 MHz for the forward link which is broken in to radio channels of 200 KHz.
       If 8 channels are supported on a single radio channel and if the guard band is
       assumed, find the number of simulations used that can be accommodated in
       GSM.                                                                   [8+8]

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Code No: 07A80404                **R07**              **Set No. 1**

**IV B.Tech II Semester Examinations,April/May 2012**
**WIRELESS COMMUNICATIONS AND NETWORKS**
**Common to Electronics And Computer Engineering, Electronics And**
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Time: 3 hours                                        Max Marks: 80
**Answer any FIVE Questions**
**All Questions carry equal marks**
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1. (a) Define the efficiency of TDMA. Explain with necessary mathematical equations.

   (b) In an un-slotted ALOHA system, the packet arrival times form a Poisson process having a rate of $10^3$ packets/ sec. If the bit rate is 10 Mbps and there are 1000 bits / packet. Find (i) the normalized throughput of the system and the number of bits per packet that will maximize the throughput.

2. (a) What are the two standard MAC protocols that are combined in the Home RF SWAP protocol?

   (b) Draw the typical packet frame format for wireless ATM? Explain each field of it?                                                                    [8+8]

3. (a) Write about shared mobile data networks?

   (b) Draw the reference architecture of the CDPD?                              [8+8]

4. (a) What is WML? Discuss the WMLs important capabilities.

   (b) Explain the functioning of wireless application environment (WAE).     [8+8]

5. (a) What are the four modes of operation of the slave in the connection state?

   (b) Explain the continuously variable slope delta modulator (CVSD) scheme for voice encoding in Bluetooth.                                              [8+8]

6. (a) Mention the advantages of packet switched data.

   (b) What do you mean by Frequency Reuse? Explain the Various techniques of Frequency Reuse.                                                          [8+8]

7. (a) Explain about ATM network concept.

   (b) Give the general structure of an ATM switch.                            [8+8]

8. (a) How is authentication provided in wireless LAN?

   (b) Write about point Coordination function(PCF)?                           [8+8]

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Code No: 07A80404     **R07**     **Set No. 3**

**IV B.Tech II Semester Examinations,April/May 2012**
**WIRELESS COMMUNICATIONS AND NETWORKS**
**Common to Electronics And Computer Engineering, Electronics And**
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Time: 3 hours          Max Marks: 80
**Answer any FIVE Questions**
**All Questions carry equal marks**
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1. (a) What are the constraints on cellular networks to provide internet based mobile applications?
   (b) Explain the Handoff procedure in CDPD with neat diagram?     [8+8]

2. Discuss about access control achieved by the MAC layer?     [16]

3. (a) What is the difference between the MAC protocol of the Bluetooth and the IEEE802.11?
   (b) State the applications and limitations of adhoc networks?     [8+8]

4. (a) Compare the $2^{nd}$ generation wireless networks with first generation networks.
   (b) Discuss the special characteristics of $3^{rd}$ generation wireless networks.     [8+8]

5. Write about the following:
   (a) Telephony control protocol
   (b) Link manager protocol
   (c) Logical link control and adaptation protocol.     [16]

6. (a) Show that the maximum throughput in slotted ALOHA is given by 0.368.
   (b) Assume that a non-linear amplifier is used to broadcast FDMA transmissions for the US AMPS standard. If control channel 352 and voice channel 360 are simultaneously transmitted by a base station, determine all cellular channels on the forward link that might carry interference due to inter modulation.
       [8+8]

7. (a) In a typical mobile IP implementation in a home agent, the agent maintains a mobility binding table to map mobile nodes home address to its care of address for packet forwarding. What entries are essential for each row of the table?
   (b) In WTLS, why is there a separate change cipher spec protocol, rather than including a change - ciper - spec message in the hand shake protocol.     [8+8]

8. (a) Discuss the different classes of service provided by SCCP (signaling connection Control part) of SS 7.
   (b) Discuss the signaling traffic in SS 7.     [16]

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