Code: DE66/DE116   Subject: WIRELESS & MOBILE COMMUNICATIONS

DiplETE – ET (Current & New Scheme)

Time: 3 Hours   **DECEMBER 2015**   Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- **Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.**
- **The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.**
- **Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.**
- **Any required data not explicitly given, may be suitably assumed and stated.**

Q.1   **Choose the correct or the best alternative in the following:**   (2×10)

a. In _____ Frequency Spectrum is divided into smaller spectra and is allocated user
(**A**) TDMA   (**B**) FDMA
(**C**) FMGA   (**D**) CDMA

b. The basic GSM is based on _____ traffic Channels.
(**A**) Connection oriented   (**B**) connection less
(**C**) Packet switching   (**D**) circuit switching

c. Wireless LAN found in a train or bus station is an example of a(n):
(**A**) Public wireless LAN   (**B**) Infrastructure wireless LAN
(**C**) ad-hoc wireless LAN   (**D**) None of these

d. Which multiple access technique is used by IEEE 802.11 standard for wireless LAN?
(**A**) CDMA   (**B**) CSMA/CA
(**C**) ALOHA   (**D**) None of these

e. IEEE 802.15.1 standard correspond to .
(**A**) Bluetooth   (**B**) WiMAX
(**C**) Wi-Fi   (**D**) Ethernet

f. When a single cell is divided into smaller cells that process is called
(**A**) Cell splitting   (**B**) Cell division
(**C**) Reuse   (**D**) Cell sharing

g. Cellular CDMA system uses what modulation method?
(**A**) GFSK   (**B**) ASK
(**C**) QAM   (**D**) BPSK

h. Smart antennas at the base stations use
(**A**) CDMA   (**B**) SDMA
(**C**) FDMA   (**D**) TDMA

i. DSSS is used by the cellular phone system.
(**A**) AMPS (**B**) GSM
(**C**) IS-95 (**D**) D-AMPS

j. _____ is an example of table driven routing protocol.
(**A**) AODV (**B**) DSDV
(**C**) DSR (**D**) TORA

Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.

Q.2 a. Explain the concept of TDMA and FDMA scheme. **(8)**

b. Discuss basic Cellular System Infrastructure. Also explain call setup between MS and BS. **(8)**

Q.3 a. List the advantages and disadvantages of DS-SS. **(6)**

b. What do you mean by small scale fading? Explain it. **(6)**

c. Explain Doppler Effect. **(4)**

Q.4 a. Discuss the Slotted ALOHA and Pure ALOHA. **(8)**

b. What is frequency reuse? How cell splitting & sectoring increase cellular capacity? **(8)**

Q.5 a. Discuss various types of satellite systems. **(8)**

b. How is roaming supported in cellular mobile systems? Explain with diagrams. **(8)**

Q.6 a. Explain GSM architecture. **(10)**

b. Explain feature of 3G network. **(6)**

Q.7 a. Explain 802.11 protocol in detail. **(8)**

b. Explain the basic functions of smart antenna with a Diagram. **(8)**

Q.8 a. Define MSK. Write the advantages of MSK over QPSK. **(8)**

b. Explain cyclic Coding and CRC code. **(8)**

Q.9 a. What is a wireless sensor network? Explain hierarchical routing in sensor network with an example. **(8)**

b. Discuss various table driven routing protocols. **(8)**