ROLL NO. _____

Code: DE66 Subject: WIRELESS & MOBILE COMMUNIC

DipIETE – ET

Time: 3 Hours **DECEMBER 2012** **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. A cellular system forward channel is referred as

(A) control signal **(B)** uplink
(C) downlink **(D)** logical path

b. Fast Fading in Wireless communication follows

(A) Gaussian **(B)** Random
(C) Rayleigh **(D)** Ricin

c. Aloha is a

(A) contention based protocol **(B)** conflict free
(C) collision resolution **(D)** All of these

d. Frequency reuse may introduce

(A) Fading of signal **(B)** Path loss
(C) Interference **(D)** Doppler shift

e. In MANET, the information is transferred by

(A) Circuit switching **(B)** Directly from one node to another
(C) Packet switching **(D)** Store end forward technique

f. Statistical multiplexing refers to

(A) Synchronous TDM **(B)** Asynchronous TDM
(C) FDM **(D)** CPM

g. Mobile satellites are preferred in

(A) LEO **(B)** GEO
(C) HEO **(D)** ICO

h. Due to the reflection of signal there is :

(A) Doppler effect **(B)** Frequency reuse
(C) Delay spread **(D)** Path loss

i. GSM and IS 95, systems implement error correction.

(A) Hamming code **(B)** CRC
(C) Parity Code **(D)** Convolution codes

j. The most appropriate wireless networking standard for creating PANs is:

(A) I-mode **(B)** IEEE 802.11b
(C) WiFi **(D)** Bluetooth

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

Q.2 a. What are the challenges for good cellular system infrastructure? **(8)**

b. Compare CDMA & TDMA in cellular system. **(8)**

Q.3 a. Explain the various propagation mechanisms in brief. **(8)**

b. What do you mean by Cyclic Redundancy Check (CRC). Explain with suitable example. **(8)**

Q.4 a. What is the concept of frequency reuse? How it is implemented. **(8)**

b. A cellular mobile radio system has the following characteristics **(8)**
(i) Transmitted signal power at base station = -90dBm
(ii) Cluster size = 7cells
(iii) The signal-to- (noise+ the total interference ratio)= 16dB.
(iv) Assuming that all the interfering base stations are at equidistant from the desired base station and thermal and amplifier noise at the mobile unit are negligible.
Determine:
- The co-channel interference (CCI) in W and dBm.
- The adjacent channel interference (ACI) in W and dBm.

Q.5 a. What do you mean by channel allocation in cellular system? Explain the specific advantages of Dynamic channel allocation over static channel allocation. **(8)**

b. Compare DSSS and FHSS transmission techniques. **(8)**

Q.6 a. Explain with neat diagram the satellite system infrastructure. **(8)**

b. Explain multicasting in mobile communication systems. **(8)**

Q.7 a. Define 'RICOCHET' wireless microcellular data network. **(8)**

b. Difference between UWB and Spread Spectrum Techniques. **(8)**

Q.8 a. Explain AMPS operation in detail. **(8)**

b. What do you mean by routing in Mobile-Adhoc Networks? Explain Dynamic source routing with need diagram. **(8)**

Q.9 Write short notes on the following:- **(8×2)**

(i) On-demand Routing.
(ii) IMT – 2000.