ROLL NO. _____

Code: DE66 Subject: WIRELESS & MOBILE COMMUNI

DipIETE – ET (NEW SCHEME)

Time: 3 Hours **JUNE 2012** **Max. Marks: 1**

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. Multiplexing can be defined

(A) Specialized computer to supervise communication traffic between the CPU and the peripheral device in the telecommunications system.
(B) Device that carries the telecommunication message in analog form for packet distribution
(C) Technology that enables a single communications channel to carry data transmissions from multiple sources simultaneously.
(D) Special purpose computer dedicated to managing communications for the host computer in the network.

b. A network that covers a large geographic area is most commonly referred as

(A) Local area network **(B)** Internet
(C) Peer to peer **(D)** Wide area network

c. Fast Fading in Wireless communication follows

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

d. Statistical multiplexing refers to

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

e. Digital subscriber lines

(A) Operate over existing telephone lines to carry voice, data and video
(B) Operate over coaxial lines to deliver Internet access
(C) Are very-high-speed data lines typically leased from long distance telephone companies
(D) Have up to twenty-four 64 Kbps channels

f. The most appropriate wireless networking standard for creating PANs is

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

g. The Wi-Fi 802.11b standard can transmit up to

(A) 54 Mbps in the unlicensed 5 GHz frequency range and has an effective distance of 10 to 30 meters.
(B) Can transmit up to 11 Mbps in the unlicensed 2.4 GHz band and has an effective distance of 30 to 50 meters.
(C) Can transmit up to 54 Mbps in the 2.4 GHz range.
(D) Can transmit up to 722 Kbps in the 2.4 GHz range.

h. One or more access points positioned on a ceiling, wall, or other strategic spot in a public place to provide maximum wireless coverage for a specific area are referred to as

(A) Wireless spots **(B)** Hot spots
(C) Hotpoints **(D)** Wireless hubs

i. The WiMax standard can transmit up to a distance of

(A) 10 to 30 meters **(B)** 30 to 50 meters
(C) 31 miles **(D)** 100 miles

j. Policies, procedures, and technical measures used to prevent unauthorized access, alternation, theft, or physical damage to information systems refers to

(A) Security **(B)** Controls
(C) Benchmarks **(D)** Algorithms

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

Q.2 a. Why is "anytime anywhere" access not required for all applications? Explain clearly. **(8)**

b. Draw and explain simplified block diagram of the wireless communication system. **(8)**

Q.3 a. How is radio propagation on land different from that in free space? **(8)**

b. The transmission power is 40W, under a free space propagation model,
(i) What is the transmission power in unit of dBm?
(ii) The receiver is in a distance of 1000 m, what is the received power, assuming that the carrier frequency Fc = 900 MHz and Gr = 0 dB?
(iii) Express the free space path loss in dB. **(8)**

Q.4 a. What is the main idea behind channel coding? Does it improve performance of mobile communication? **(8)**

b. What is interleaving in wireless communication? Explain with concept. **(8)**

Q.5 a. What do you mean by frequency re-use? How it is used to increase the system capacity? **(8)**

b. Explain in detail, co-channel and adjacent channel interference. How it will affect the system capacity? **(8)**

Q.6 a. What is the key issue for contention based access protocols? How is it solved? Give an example to explain your answer. **(4)**

b. Compare the various multiple division technique with reference to wireless communication. **(12)**

Q.7 a. Explain Reuse Partitioning-Based channel Allocation and overlapped Cells-Based channel allocation. **(8)**

b. How do you differentiate between different types of handoff? Explain. **(8)**

Q.8 a. What are the advantages and disadvantages of LEO and GEO? **(5)**

b. How is the call setup in a satellite system different from a cellular system? **(5)**

c. Explain the classification of sensor networks. **(6)**

Q.9 a. Compare Hyper LAN 2 and Bluetooth. **(6)**

b. Explain the concept of beam forming in smart antennas. **(6)**

c. Explain the various security threats to wireless networks. **(4)**