CE2-R3: WIRELESS AND MOBILE NETWORKS

NOTE:

1. **Answer question 1 and any FOUR questions from 2 to 7.**
2. **Parts of the same question should be answered together and in the same sequence.**

Time: 3 Hours **Total Marks: 100**

1.

a) What are the distinguishing features in Wireless Communication using GEO and LEO satellites?

b) With an illustration explain Raleigh fading model used in cellular radio propagation.

c) How does cellular concept help in efficient frequency spectrum utilization?

d) What is QPSK? Give its limitations as compared to QAM.

e) Give an account of dynamic channel allocation methods and why are they more useful than static channel allocation methods.

f) Why is power control a major issue for operation of CDMA?

g) What are the main deployment issues to deal within WLL? Which of these issues do not exist in wireline local loop?

(7x4)

2.

a) Why are both DCF and PCF technologies provided in IEEE 802.11 wireless LANs?

b) Distinguish between MACA and MACAW protocols in wireless LANs.

c) What is the hidden node problem in wireless LANs?

(6+6+6)

3.

a) Describe the Circuit-switched Data transfer on Digital cellular networks. Clearly explain the terms TRAU and IWF used to support GSM in data transport.

b) What are the requirements for transforming multimedia data on wireless networks? Does wireless ATM is suitable for the above? Give reasons.

(9+9)

4.

a) Draw the basic reference architecture and signaling interfaces for GSM. Why is Smart card needed in GSM, while it is not required in AMPS?

b) How do you compare D-AMPS and GSM systems in terms of coverage area, transmitted power and error control system? How are adjacent channel and co-channel interferences addressed in the above systems?

(9+9)

5.

a) Explain the systems characteristics of UBW and how it can solve the problems of scarcity of radio spectrum. How is UBW different from frequency hopping as used in Blue tooth?

b) Why is standard TCP not adequate for mobile wireless networks? Explain, using suitable diagram.

(9+9)

6.

a) How are slot, frame, multiframe and superframe related in GSM?

b) Deduce the relationship of received power (Pr) at a distance (d) in a wireless communication system using two-ray model.

c) What is dropped call rate? Give the factors responsible for dropped call rate. Give the formula for dropped call rate and explain the various factors.

(6+6+6)

7.

a) What is cell sectoring? List its advantages.

b) How can Internet be supported on mobile links. Draw the architecture and functional components of mobile IP. Describe data transfer from a mobile node to a fixed node and vice-versa.

c) What are advantages of IPv6 over IPv4? List the entities of mobile IP and describe data transfer from a mobile node to a fixed node and vice-versa.

(6+8+4)