909 Elective-I : Wireless Communication & Networks

P. Pages : 1 **GUG/W/16/3822**

Time : Three Hours | | *3593* | | Max. Marks : 70

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Notes : 1. All questions carry equal marks.
2. Illustrate your answers wherever necessary with the help of neat sketches.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.
5. Attempt **any five** questions.

1. a) Explain the concept of frequency reuse with the help of equations. **7**

   b) If the signal to interference ratio of 15 dB is required for satisfactory forward channel performance of a cellular system, what is the frequency reuse factor and cluster size that should be used for maximum capacity if the path loss exponent is a) n = 4 b) n = 3. Assume that there are six cochannel cells in the first tier and all of them are at the same distance from the mobile. Use suitable approximations. **7**

2. a) What are the ways of improving coverage and capacity in cellular systems. Explain cell splitting technique in detail. **7**

   b) Describe the TDMA technique. What are its features. Derive expression for efficiency. **7**

3. a) If a normal GSM slot consist of six trailing bits, 8.25 guard bit, 26 training bits and two traffic bursts of 58 bits of data, find frame efficiency. **7**

   b) What is throughput in packet radio protocols. Explain pure and slotted aloha. **7**

4. a) Explain X.25 protocol in OSI model. **7**

   b) Describe common channel signaling with the help of network architecture. **7**

5. a) Describe the operation of a mobile IP. **7**

   b) What are the key components in a WAP environment? Hence explain WML and WML script. **7**

6. a) Discuss the Wireless LAN applications. **7**

   b) Discuss the strengths and Weaknesses of Infrared LANs. Describe the different transmission techniques. **7**

7. a) For IEEE 802, describe LLC, LLC services and LLC protocol. **7**

   b) What are the services provided by Link manager protocol (LMP) Describe them? **7**

8. Write short notes on **any two.** **14**
   a) Trends in cellular radio and personal communication
   b) WLL technology
   c) Wireless datagram protocol.

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