GIET MAIN CAMPUS AUTONOMOUS,
GUNUPUR - 765022

Registration No: | | | | | | | | | | | **M.TECH**

Total Number of Pages : 2

M.TECH 1ST SEMESTER REGULAR EXAMINATIONS, DECEMBER 2018
WIRELESS AND MOBILE COMMUNICATION
Branch: EC, Subject Code:MECPC1020
(Regulations 2018)

Time: 3 Hours **Max Marks : 70** **Question Code:** RD18002044

PART-A (10 X 2=20 Marks)

1. Answer the following questions.
   a. Write the advantages of TDMA over FDMA system?
   b. What is Frequency Reuse?
   c. Prove D=√3NR?
   d. What is the need of handoff in mobile communication? Explain the mobile assisted handoff strategy.
   e. What is adjacent channel interference and how can it be overcome?
   f. What are the advantages of spread spectrum modulation techniques?
   g. What is co-channel reuse ratio?
   h. What is meant by spread spectrum multiple access?
   i. What is the need for equalization ?
   j. Mention the technology used in 5G ?

PART-B (5 X 10=50 Marks)
Answer any five questions from the following.

2.a)What is cell splitting? Explain the 1:4 cell splitting technique. How does cell splitting improve the system capacity? [5]
b)What do you mean by Handoff. Explain the types of handoff with suitable diagram. [5]

3.a) Explain the ground reflection model and find out the expression for the path loss in dB ? [5]
b) If a GSM system uses a frame structure where each frame consists of 8 time slots, and each time slot contains 156.25 bits, and data is transmitted at 270.833 kbps in the channel, find [5]
(i)the time duration of a bit
(ii)the time duration of a slot
(iii)the time duration of a frame
(iv)How long must a user occupying a single time slot wait between two successive transmissions?

4.a) If a GSM system uses a frame structure where each frame consists of 8 time slots, and each time slot contains 156.25 bits, and data is transmitted at 270.833 kbps in the channel, find [5]
(a)the time duration of a bit (b)the time duration of a slot (c)the time duration of a frame
(d)How long must a user occupying a single time slot wait between two successive transmissions?
b) Explain the concept of frequency reuse in mobile communication? **.** [5]

5.a) Briefly describe the physical factors in the radio propagation channel that influence small scale fading? [5]
b) Explain the GPRS architecture? How is it different from GSM architecture? [5]

6.a) Explain with neat diagram different types of small scale fading based on signal & channel parameter. [5]

b) Explain about the CDMA. How it is different from CDMA 2000? [5]

7. a) What's a Rake receiver ? Explain operation and principle of M-branch RAKE receiver. [5]

b) Explain about the different parameters of Multipath channels. [5]

8. Write short answer on

a) Frequency Reuse [5]

b) Co-channel interference [5]

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