SET - 1

Code No: 2420403

IV B. Tech II Semester Regular Examinations, April/May 2009
CELLULAR AND MOBILE COMMUNICATION
(Electronics & Communications Engineering)

Time: 3 hours **Max Marks: 80**

Answer Any FIVE Questions
All Questions carry equal marks

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1. (a) Explain the operation of the cellular system?
   (b) Discuss analog cellular systems (AMPS) in detail? (8+8)
2. (a) What is meant by frequency reuse? Explain various frequency reuse schemes and find the frequency reuse distance?
   (b) Describe the CCI phenomenon in reuse cellular system that employs omni directional antenna system. (8+8)
3. (a) Define the CCI and explain how it is measured at the mobile unit?
   (b) Explain the different types of Non-co channel interferences (8+8)
4. (a) Discuss the standard conditions in obtaining mobile point-point (Lee Model) model.
   (b) Explain the mobile radio propagation over water. (8+8)
5. (a) Discuss the characteristics of cell site antennas.
   (b) Derive a relation between transmitted power, receiver power with transmitting and receiving antennas as a function of distance and wavelength. (8+8)
6. (a) Explain the following in detail concern to the mobile system?
   (i) Access channel (ii) Paging channel
   (b) Explain the Non fixed channel assignment algorithm (8+8)
7. (a) Explain the following hand off
   i) Power difference hand off
   ii) Inter system hand off
   (b) Explain cleanly how to calculate δ and μ for single cell. (8+8)
8. (a) Draw the GSM architecture and explain each block.
   (b) Distinguish between TDMA and CDMA with neat figures. (8+8)

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SET - 2

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Answer Any FIVE Questions
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1. (a) Explain about Mobile fading characteristics.
   (b) What are the major problems in AMPS system? How there are overcome in GSM system? (8+8)
2. (a) What is meant by co-channel interference reduction factor? Derive an expression for C/I?
   (b) What is cell splitting? Explain the two methods of cell splitting techniques. (8+8)
3. (a) Explain how co-channel interference is measured in Real time mobile trans receiver.
   (b) Discuss the effect of Near end and far end interference of mobile unit. (8+8)
4. (a) Explain about the concept of mobile to mobile propagation.
   (b) Discuss the Foliage loss with neat figures. (10+6)
5. (a) Classify cell site antennas? Briefly describe each antenna.
   (b) What do you understand by "Engineering antenna pattern"? Explain the corresponding patterns. (10+6)
6. (a) Explain the following
   (i) Setup channels
   (ii) Voice channels
   (b) Discuss the channel assignment to travelling mobile units. (8+8)

7. Explain the following hand offs

   (i) Inter system hand off

   (ii) Soft hand off

   (iii) Mobile assisted hand off

   (iv) Power difference hand off (4+4)

8. (a) Discuss the GSM channels and channel modes in brief.

   (b) Explain the salient features of TDMA. (8+8)

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SET - 3

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Time: 3 hours **Max Marks: 80**

Answer Any FIVE Questions
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1. a)Describe the performance criteria of a mobile system .
   b) Describe digital cellular system. 8+8=16
2. a) Discuss the various frequency reuse schemes? Calculate the frequency reuse distance for k=4, 7 and 12.
   b)what is cell splitting ? Explain various cell splitting techniques with neat figures. 8+8=16
3. a) Explain the different types of non co-channel interference.
   b) Explain the principle of operation of diversity receiver 8+8=16
4. a) Obtain path loss from point to point prediction model using general approach.
   b) Discuss the various parameters of a cellular system that can be adjusted to increase coverage area. 8+8=16
5. a) write short notes on roof mounted Antennas
   b)Explain the directional antennas that are used to reduce interference. with 120^0 sector and 60^0 sector. 8+8=16
6. a) Distinguish between channel management and frequency management.
   b) Mention the various techniques for increasing frequency spectrum.
   c) Explain channel sharing and channel borrowing . 8+8=16
7. What is meant by Hand off's. Explain the different type of Hand off's available in cellular system. 16
8. Explain the following
   i)GSM Channels
   ii) TDMA 8+8=16

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SET - 4

Code No: 2420403

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CELLULAR AND MOBILE COMMUNICATION
(Electronics & Communications Engineering)

Time: 3 hours **Max Marks: 80**

Answer Any FIVE Questions
All Questions carry equal marks
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1. a)Draw the Basic cellular system and explain the function of each unit.
   b) Discuss digital cellular system . 8+8=16
2. a)Explain co-channel interference redaction factor and derive the general formula for c/I
   b) What is cell splitting ?Explain two methods of cell splitting techniques. 8+8=16
3. a) Explain the operation of diversity receiver.
   b)What is non co-channel interference? Explain different types of non co-channel interference. 8+8=16
4. a) Derive the relation for received power in when the wave is propagating over water on flat open area between two fixed stations.
   b) write short notes on point to point 'Lee' model. 8+8=16
5. a)Explain about Omni directional antennas
   b) write short notes "umbrella pattern antennas". 8+8=16
6. Explain the following.
   I) Set up channel iii) channel sharing iii) Underlay- overlap
   iv)Adjacent channel Assignment 16
7. a) What is Hand off? Distinguish between mobile assisted Hand off and inter system Hand off.
   b) Desire the relation ship between capacity, voice pnelit and dropped call rate 8+8=16
8. a)Write short notes on "CDMA"
   b) Discuss about GMS architecture with a neat diagram 8+8=16

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