Code No: 117BG **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, November/December - 2017

CELLULAR AND MOBILE COMMUNICATIONS

(Electronics and Communication Engineering)

Time: 3 Hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a) What are the limitations of conventional mobile telephone system. [2]
b) Explain real time Co- Channel interference. [3]
c) Define the General formula for noise limited system. [2]
d) Draw the antenna equivalent circuit. [3]
e) What is the commonly used formula for interference limited system? [2]
f) What are the advantages of sectorized cells? [3]
g) Define frequency reuse distance [2]
h) Explain the phase difference between direct and reflected paths. [3]
i) Explain about paging channels. [2]
j) Define Handoff. [3]

PART - B

(50 Marks)

2.a) Describe the digital cellular land mobile systems and the limitations of AMPS standard.
b) Distinguish between permenant splitting and dynamic splitting. [5+5]

OR

3.a) Mention the two frequency reuse schemes and explain N-Cell reuse pattern in detail for four and seven cell reuse with illustrative diagrams.
b) Discuss the performance criteria of the basic cellular system? [5+5]

4.a) Explain about the co-channel interference reduction factor and derive the general formula for C/I.
b) Briefly explain the multiple knife edge diffraction. [5+5]

OR

5.a) Compare and contrast Near end and Far end interferences.
b) Briefly discuss different diversity techniques. [5+5]

6.a) Explain the concept of diversity antenna spacing in cell site with a simple Diagram.
b) Compare the symmetrical and asymmetrical patterns. [5+5]

OR

7.a) Explain about High gain antennas
b) Explain the role of directional antennas for interference reduction. [5+5]

8.a) What do you understand by non-fixed channel assignment? Describe the corresponding algorithms.
b) Explain about the Underlay-Overlay Arrangement. [5+5]

OR

9.a) Describe the concept of frequency management concern to the numbering the Channels and grouping into the subset.
b) Explain in detail access channels and operational techniques. [5+5]

10.a) Explain how the handoffs implemented based on signal strength.
b) How the dropped call rate is related to the capacity and voice quality. [5+5]

OR

11.a) What are the various methods of delaying the handoff? Explain briefly.
b) What is meant by handoff initiation? Explain the different methods of handoff initiation with suitable diagrams. [5+5]

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