

R15**Code No: 127BG****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech IV Year I Semester Examinations, May/June - 2019****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) Define Coherence time. [2]
- b) Name the wireless access techniques used in 1G, 2G, 3G, and 4G. [3]
- c) Define frequency diversity. [2]
- d) List out various methods of reducing co-channel interference. [3]
- e) What is constant standard deviation? [2]
- f) What are basic propagation mechanisms? [3]
- g) What is the purpose of voice channel? [2]
- h) Write short notes on channel sharing. [3]
- i) What is meant by handoff initiation? [2]
- j) Differentiate between the soft and hard handoff. [3]

PART-B**(50 Marks)**

- 2.a) Explain various techniques used to increase the capacity of a cellular system.
- b) Define co-channel Interference. Explain about co-channel interference reduction factor. [5+5]

OR

- 3.a) Discuss the limitations of conventional mobile telephone system.
 - b) Explain the concept of frequency reuse with a neat diagram. [5+5]
- 4.a) What are different types of non-co-channel interference in a cellular system.
 - b) Discuss the various effects of antenna parameters on the interference in a cellular system. [5+5]

OR

- 5.a) Explain measurement of real time co-channel interference.
 - b) Explain the concept of space diversity with a neat diagram. [5+5]
- 6.a) Discuss the effects of human made structures on cell coverage.
 - b) Explain in detail about various mobile antennas. [5+5]

OR

- 7.a) List the various merits of Lee model.
- b) Explain signal reflections in flat and hilly terrain with neat diagram. [5+5]

8.a) Describe the grouping of the voice and paging channels.

b) Explain about overlaid cells.

[5+5]

OR

9.a) Explain non-fixed channel assignment algorithms.

b) Explain numbering the channels and grouping into subsets.

[5+5]

10.a) Write about the concept of delayed handoff.

b) Explain the necessity of power difference handoff and also state the different conditions based on the power difference handoff.

[5+5]

OR

11.a) Explain dropped call rates and their evaluation.

b) What is Handoff? Explain the handoff process in cellular systems.

[5+5]

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