

R15

Code No: 127BG

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, July/August - 2023

CELLULAR AND MOBILE COMMUNICATIONS

(Electronics and Communication Engineering)

Time: 3 Hours

Max. Marks: 75

Note: i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

- 1.a) What is MAHO? [2]
- b) Define frequency reuse. [3]
- c) What are the types of indoor propagation models? [2]
- d) Explain about Cross Talk. [3]
- e) Which type of antenna is used for center excited cells? [2]
- f) How can we improve the coverage and capacity in cellular system? [3]
- g) What is mean by numbering and grouping? [2]
- h) What is the non-fixed channel assignment? [3]
- i) What is handoff? [2]
- j) Define intersystem hand off. [3]

PART – B

(50 Marks)

2.a) What is the criterion to define the Performance of cellular and mobile radio systems? Explain.

b) Write the advantages of digital cellular systems over analog cellular systems? [5+5]

OR

3.a) Describe the concept of frequency reuse channels and frequency reuse distance.

b) Explain about analogue cellular mobile radio system (AMPS). [5+5]

4.a) Explain the co-channel interference reduction factor and derive the general formula for C/I.

b) Derive the desired C/I form normal case in an Omni- directional antenna system. [5+5]

OR

5.a) Prove that Real time CCI measurement is difficult to achieve in practice.

b) Give the differences between next channel interference and neighboring channel interference. [5+5]

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- 6.a) Explain point-to-point model and mention the types of point-to-point model.
b) Explain the general formula for mobile propagation over water and flat open area. [5+5]

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- 7.a) Discuss about effects of Cell Site Components.
b) Write about Long-distance propagation. [5+5]

8. Explain the following:
a) Channel sharing b) Channel Borrowing. [5+5]

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- 9.a) What is the importance of frequency management chart?
b) Briefly explain the Non-fixed channel assignment algorithms. [5+5]

- 10.a) How dropped call rate is defined using general formula and commonly used formula?
b) Explain about the types of Hand offs in detail. [5+5]

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- 11.a) Explain the differences between handoff initiation in Analog cellular systems and Digital Cellular systems.
b) Explain about the delaying Hand off in detail. [5+5]

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