

Code No: 137JK

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, March - 2021

WIRELESS COMMUNICATIONS AND NETWORKS

(Electronics and Communication Engineering)

Time: 3 Hours

Max. Marks: 75

**Answer any Five Questions
All Questions Carry Equal Marks**

- 1.a) Discuss different techniques used for improving coverage and capacity in cellular systems.
- b) Explain the various types of Handoff processes available. [8+7]
- 2.a) Explain how the Two-Ray model is used when a single ground reflection dominates the multipath effect.
- b) With neat diagrams explain the Free Space Propagation Model. [8+7]
- 3.a) Explain Log-distance path loss model in detail.
- b) Explain knife Edge Diffraction Model. [8+7]
- 4.a) What is small scale fading? What are the factors influencing small scale fading?
- b) What is the difference between frequency selective fading and flat fading? [8+7]
- 5.a) Derive the Impulse response model of a Multipath channel.
- b) Describe fading effects due to multipath time delay spread. [8+7]
6. Derive the expression for Maximal Ratio Combining Improvement. [15]
- 7.a) What are the different receiver diversity combining techniques? Explain.
- b) Explain in detail about Decision Feedback Equalization. [8+7]
- 8.a) List and briefly discuss about IEEE 802.11 services.
- b) What characteristics of a wireless LAN present unique security challenges not found in wired LANs?
- c) What do you mean by MAC layer? Explain its functionality. [5+5+5]

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