Code No.: EC731PE | R20 | H.T.No. | | | 8 | R | | | | | |

**CMR ENGINEERING COLLEGE: : HYDERABAD**
**UGC AUTONOMOUS**
**IV–B.TECH–I–Semester End Examinations (Regular) - November- 2023**
**WIRELESS COMMUNICATIONS AND NETWORKS**
**(ECE)**

**[Time: 3 Hours]** **[Max. Marks: 70]**

**Note:** This question paper contains two parts A and B.
Part A is compulsory which carries 20 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** **(20 Marks)**

| | | | |
|---|---|---|---|
| 1. | a) | Define Co-channel Interference. | [2M] |
| | b) | Define Handoff. | [2M] |
| | c) | Mention the various partition losses that occur between different floors of a building. | [2M] |
| | d) | What is the PCS extension to HATA model? | [2M] |
| | e) | List out the types of small-scale multipath measurements techniques. | [2M] |
| | f) | What is time delay spread in multipath propagation? | [2M] |
| | g) | Give the fundamentals of Equalization. | [2M] |
| | h) | What is meant by decision feedback equalization? | [2M] |
| | i) | List the different IEEE standards in wireless Networks. | [2M] |
| | j) | Give the representation of IEEE 802.11 standard format. | [2M] |

**PART-B** **(50 Marks)**

| | | | |
|---|---|---|---|
| 2. | a) | Discuss briefly about Frequency reuse. | [6M] |
| | b) | Write a short note on various Channel assignment strategies. | [4M] |
| | | **OR** | |
| 3. | | Explain the differences between Co-channel interference and Adjacent channel interference and explain the methods to reduce the Co-channel interference from multiple cells. | [10M] |
| 4. | | Write about the Radio wave propagation and derive the equation for path loss considering Two-ray model with neat diagrams. | [10M] |
| | | **OR** | |
| 5. | | Write about the partition losses considering Indoor propagation models. | [10M] |
| 6. | | Discuss the Characterization and Simulation of Clarke and Gans fading models. | [10M] |
| | | **OR** | |
| 7. | a) | Discuss about Fast fading and Slow fading. | [5M] |
| | b) | What are the differences between Frequency selective fading and Flat fading? Explain in detail. | [5M] |
| 8. | | Write a short note on | [5M] |
| | a) | Decision feedback equalization (DFE) | [5M] |
| | b) | Maximum likelihood sequence estimation (MLSE) | |
| | | **OR** | |
| 9. | | Discuss the features and applications of RAKE receiver with a block diagram. | [10M] |

10. Draw and explain the various fields in an IEEE 802.11 MAC frame. [10M]

**OR**

11. a) Write the enhancements in IEEE 802.11 Protocol. [5M]

b) When does a WLAN will act as a Personal area network (PAN)? Explain. [5M]

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