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**Presidency University**

**Bengaluru**

**Ph.D. Course Work End Term Examinations – JAN-FEB 2025**

**Date:** 30-01-2025

**Time:** 09.30 AM TO 12.30 PM

**Max Marks** : 100

**Weightage** : 50%

**Semester** :

**Course Code:** ECE0815

**Course Name:** Wireless Communication

**Department:** SOCSE

 **Instructions:**

1. *Read the all questions carefully and answer accordingly.*
2. *Do not write any matter on the question paper other than roll number.*

**PART A**

**Answer all the Questions. Each question carries 10 marks. (6Qx 10M= 60M)**

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| --- | --- |
| **1.** | Discuss the concept of cell structure in wireless communication systems. How does the cell structure affect network design and performance?  |
| **2.** | Illustrate Handoff mechanism adopted in cellular communication detailing the condition for proper handoff with neat diagram. |
| **3.** | Describe Spread Spectrum Multiple Access (SSMA) and its two main techniques: Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum (FHSS). How do they improve communication reliability and security?  |
| **4.** | Illustrate the concept of frequency reuse. |
| **5.** | Explain the concept of MIMO (Multiple Input Multiple Output) systems. How do MIMO systems enhance the capacity and reliability of wireless communication?  |
| **6.** | Explain on the capacity in fading and non-fading channels and compare both. |

**PART B**

**Answer all the Questions. Each question carries 20 marks. (2Qx 20M= 40M)**

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| **7.** | How does MIMO technology improve system capacity in both fading and non-fading channels? Discuss the impact of fading on MIMO performance.  |
| **8.** | Discuss the IEEE 802.11 standard, its evolution, and the significance of different amendments (e.g., 802.11a, 802.11b, 802.11g, 802.11n, 802.11ac).  |