



SANJEEV AGRAWAL GLOBAL EDUCATIONAL UNIVERSITY, BHOPAL

MID SEMESTER TEST-II

Autumn 2024-25 (JAN-2025)

Name of Program-PhD

Course Name: Electronics and Communication Engineering

Course Code - EC20P104

Max. Duration: 1.5hrs

Max. Marks: 30

SECTION - A

1. Objective Type Questions (ALL QUESTIONS ARE COMPULSORY) (5X1 = 05)

- a) Event-driven simulation is beneficial because:
- It requires less computational effort by simulating only when changes occur in the circuit
 - It always provides faster results than other simulation methods
 - It eliminates the need for test pattern generation
 - It simulates analog circuits effectively
- b) Monte Carlo simulation is used in low power design to:
- Optimize transistor sizing
 - Analyze the impact of process variations on power dissipation
 - Determine signal integrity issues
 - Reduce circuit complexity
- c) The static state power dissipation is most influenced by:
- Switching activity
 - Threshold voltage
 - Leakage current
 - Capacitance
- d) Which of the following is an emerging approach for low power design?
- Increasing transistor sizes
 - Adopting multi-threshold CMOS (MTCMOS) technology
 - Raising operating voltage
 - Using larger gate oxide thickness
- e) What is the primary goal of computer-aided diagnosis in biomedical signal processing?
- Reduce data storage requirements
 - Automate the detection of abnormalities
 - Improve signal acquisition
 - Increase signal noise

SECTION – B

2. Short Answer Type Questions (Attempt any THREE) (3X5 =15)

1. Explain different problems of ideal and real tests.
2. Discuss Monte Carlo Simulation method and Gate level logic simulation.
3. Describe classification of biomedical signals.
4. Explain spice circuit simulators.
5. Describe Adaptive and optimal filtering.

SECTION – C

3. Long Answer Type Questions (Attempt any ONE) (1X10 =10)

1. Describe emerging low power approaches in VLSI designing.
2. How do neural networks and deep learning approaches improve the classification accuracy of biomedical signals?