



SANJEEV AGARWAL GLOBAL EDUCATIONAL (SAGE) UNIVERSITY, BHOPAL

Mid Semester Test- I

Spring 2023-24 (April 2024)

Name of Program-PhD

**Course Code - CS20P104
(Computer Science & Engineering)**

Max. Duration: 1.5 hrs

Max. Marks: 30

SECTION - A

A. Objective Type Questions (ALL QUESTIONS ARE COMPULSORY)

- a) How does software piracy impact the software industry and users?
 - i. It benefits both the industry and users
 - ii. It has no impact
 - iii. It results in financial losses for the industry and poses risks to users due to potential malware in pirated software
 - iv. It leads to higher software quality
- b). Constraints in optimization problems represent:
 - i. The maximum allowed values for variables
 - ii. The minimum allowed values for variables
 - iii. Limitations on variables or parameters
 - iv. Unbounded regions of the solution space
- c) What is the existence of weakness in a system or network is known as?
 - i. Attack
 - ii. Exploit
 - iii. Vulnerability
 - iv. Threat
- d) Which of the following is an example of a real-life optimization problem?
 - i. Scheduling tasks in a manufacturing plant
 - ii. Calculating the square root of a number
 - iii. Drawing a graph
 - iv. Sending an email
- e) . An act to injure, corrupt, or threaten a system or network is characterized as which of the below?
 - i. Digital crime
 - ii. Threats
 - iii. System hijacking
 - iv. Cyber Attack

SECTION – B

B. Short Answer Type Questions (Attempt any THREE)

(3X5 =15)

- a) Discuss the concept of Ant Colony Optimization (ACO) and its application in solving optimization problems.
- b) Explain the difference between cyber threats and cyber-attacks.
- c) Discuss the impact of software piracy on the software industry and users.
- d) Describe the importance of cyber laws and ethics in addressing cybercrimes.
- e) Explain the working principles of Genetic Optimization algorithms.

SECTION – C

C. Long Answer Type Questions (Attempt any ONE)

(1X10=10)

- a) How do optimization techniques contribute to solving complex engineering problems such as structural design, scheduling, and resource allocation?
- b) Discuss some recent notable threats to the cyber domain and their impacts.