Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– 1 • EXAMINATION – WINTER - 2023

Subject Code:4715903 Date: 29 Jan 2024

Subject Name:Defensive Programming

Time:10:30 AM TO 01:00 PM Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** List software vulnerabilities along with appropriate defensive programming solutions. If an android application code is vulnerable then which possible threats may occur? **07**

(b) Discuss the steps of Penetration Testing Method with suitable diagram. **07**

Q.2 **(a)** Discover the possible attacks and likelihood of exploit in the below code: **07**

```
String username = "";

String password = "";

username = s.getParser().getRawParameter(USERNAME);

password = s.getParser().getRawParameter(PASSWORD);

……..

……..……

String query = "SELECT * FROM user_system_data WHERE user_name = '"

+ username + "' and password = '" + password + """;

ec.addElement(new StringElement(query));
```

(b) Differentiate between STRIDE vs. PASTA. Summarize the threat modeling process of PASTA with desired property of each threat. **07**

OR

(b) What is the full form of DREAD? Summarize the application threat modeling process of DREAD with risk ranking matrix. **07**

Q.3 **(a)** Discover and print previously connected all wireless networks along with their MAC address using Python script. **07**

(b) Utilize the socket module and build a Python script to establish communication between client and server. **07**

OR

Q.3	**(a)**	Discuss the following phase 1 of network penetration testing with suitable example: Phase 1. Information Gathering a. Map out the network b. Identify possible targets c. Enumerate weaknesses in the services running on those targets	**07**
	(b)	Write a python3 script to build a Brute Force Attack.	**07**
Q.4	**(a)**	What is SSH? Discover the use of methods of pexpect python package which are used for SSH connection.	**07**
	(b)	List the functionalities of Wireshark. Write a function to scan the listed ports of target machine using python.	**07**
		OR	
Q.4	**(a)**	Write a python3 script to analyze metadata of the Portable Document Format.	**07**
	(b)	Build a python script for Windows Registry Analysis.	**07**
Q.5	**(a)**	Who is the developer of Metasploit Project? Explain that how the Pentagon's dilemma was solved using TTL fields?	**07**
	(b)	Write a python script to detect the physical location of targeted node with latitude and longitude with the utilization of appropriate module.	**07**
		OR	
Q.5	**(a)**	Criticize any one case of cyber warfare in conflict with possible solutions.	**07**
	(b)	Utilize the smtplib module and build a python script to send spoofed e-mail.	**07**

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