Reg. No.

B.E./ B.TECH. DEGREE EXAMINATIONS, MAY 2024
Eighth-Semester
IT18012- SECURITY PRINCIPLES AND TECHNIQUES
(Information Technology)
(Regulation 2018/2018A)

TIME: 3 HOURS   **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Explore the approaches, trade-offs in security design principles.	4
CO 2	Design a secure operating system.	6
CO 3	Design a secure database application.	6
CO 4	Simulate the various platform security models in a mobile environment.	3
CO 5	Identify the risks and Countermeasures in Cloud Security.	4

PART- A(10x2=20Marks)
(Answer all Questions)

		CO	RBT LEVEL
1.	Point out the two principal requirements for the secure use of symmetric encryption?	1	4
2.	Identify the factors that lead to Cryptanalysis.	1	4
3.	Correlate the Physical Characteristics Used in Biometric Applications.	2	4
4.	Investigate the purpose of Rainbow table.	2	4
5.	Outline the scenario where a injection attack occurred.	3	4
6.	Identify the three distinct types of locations in a process address space that buffer overflow attacks typically target.	3	4
7.	Write down the functionality of the command chroot jail.	4	3
8.	Distinguish between full virtualization and para virtualization.	4	4
9.	Identify the list of malfunctions performed by viruses in mobile devices.	5	4
10.	Draw the diagram of electronic payment model.	5	3

PART- B (5x 14=70Marks)

		Marks	CO	RBT LEVEL
11. (a)	Discuss with a neat sketch about the model for security.	(14)	1	2
	(OR)			
(b)	Describe how message authentication is done using MAC and discuss how message authentication is done using one-way hash function?	(14)	1	2

12. (a) Evaluate how Token based Authentication is applied in Smart card reader **(14)   2   5**
Exchange operation. Illustrate the steps involved in establishing user
authentication with eID.

(OR)

(b) Assess the performance of a generic Biometric system with a neat **(14)   2   5**
illustration and explain it with a practical IRIS biometric system
implemented in UAE system.

13. (a) Write short notes on **(14)   3   3**
a) Digital immune system and
b) Behavior blocking software

(OR)

(b) Write a C code to explain how stack overflow and heap overflow occurs **(14)   3   3**
and explain how safe coding is implemented to address the above Buffer
overflows.

14. (a) Apply SQL injection attacks over Employee Database and any public **(14)   4   3**
domain using SQLMAP.

(OR)

(b) Write down the appropriate counter measures taken to protect virtualized **(14)   4   3**
systems and Hypervisors with the help of Virtual Firewalls.

15. (a) Examine the performance of GSM Security architecture with a neat **(14)   5   4**
diagram and explore how security is achieved through encryption
principles.

(OR)

(b) Investigate the different types of attacks in mobile environments and types **(14)   5   4**
of Malwares that affect mobile devices.

PART- C (1 x 10 = 10 Marks)
(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Write a case study on how Role based Access control is implemented in Bank.	**(10)**	**2**	**3**

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