



B.Tech VII Semester Regular/Supplementary Examinations, December 2024

**INFORMATION SECURITY
(IT)**

Maximum Marks: 70

Date:30.12.2024

Duration: 3 hours

- Note:**
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks		(10X2M=20 Marks)	CO	Bloom Tx
1	Explain the principles of security?		1	1
2	Explain substitution techniques in security		1	2
3	List down the principles of Block Ciphers.		2	1
4	What are the requirements of MAC function?		2	2
5	What is Digital Signature? What is the uses of Digital Signature		3	2
6	What is the importance of hash function?		3	1
7	How does S/MIME differ from PGP?		4	1
8	List the main function of key management in IPsec?		4	1
9	What is intrusion detection?		5	1
10	What are viruses and related threats in cybersecurity?		5	1

Part-B

Answer All the following questions.		(5X10M=50Marks)	CO	Bloom Tx
11	A. Explain the need for security. Explain the types of security attacks. [5M] B. Explain symmetric key Cryptography. [5M]		1	2 2
OR				
12	A. Explain about steganography. [5M] B. Explain in detail about security services. [5M]		1	2 2
13	A. Explain the different modes of operation for block ciphers. Discuss the advantages and disadvantages of ECB, CBC, and CTR. [5M] B. Explain about Block cipher modes of operations. [5M]		2	2 2
OR				
14	A. Explain about AES algorithm. [5M] B. Explain Diffie -Hellman Key Exchange algorithm. [5M]		2	2 2

15	A. Explain in detail about SHA algorithm. [5M] B. Discuss the Kerberos authentication protocol. Explain its operation, advantages, and disadvantages in network security. [5M]	3	2 2
OR			
16	Explain CMAC (Cipher-based Message Authentication Code) and its advantages over HMAC. How is CMAC constructed? [10M]	3	2
17	A. Explain in detail about S/MIME. [5M] B. Explain in detail about PGP. [5M]	4	2 2
OR			
18	A. Explain in detail architecture of IP Security with neat Diagram. [5M] B. Explain about S/MIME Certification processing. [5M]	4	2 2
19	A. Explain in detail about computer virus, and how does it differ from other malware like worms and Trojans? [5M] B. Illustrate the key considerations for ensuring web security? [5M]	5	2 2
OR			
20	A. Explain the role of intrusion detection systems (IDS) in maintaining network security. [5M] B. Explain the role of Secure Socket Layer (SSL) and Transport Layer Security (TLS) in web security. [5M]	5	2 2