	(3 hours) Marks	[80]
	Question No. 1 is compulsory. Attempt any 3 out of remaining 5.	
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Q.1	a) Explain the different software flaws with example.b) Define goals of security and mechanism to achieve them.	05 05
	c) Define the properties and applications of Hash function.d) Explain handshake protocol in SSL.	05 05
Q.2	a) How is security achieved in Transport and Tunnel modes of IPSEC? Explain the role of AH and ESP.	10
	b) How does PGP achieve confidentiality and authentication in emails?	10
Q.3	a) Why are digital certificates and signatures required? What is role of digital signature in digital certificates? Explain any one digital signature algorithm.	10
	b) What are the different components of Intrusion Detection System? Compare signature based IDS to anomaly based IDS.	10
Q.4	 a) Discuss DES with reference to following points Block size and key size need of expansion permutation role of S-box weak keys and semi weak keys possible attacks on DES 	10
	b) Explain Diffie Hellman key exchange algorithm. What types of attacks are possible on it explain with example.	10
Q.5	a) Explain briefly the following attacks with example (I) Session hijacking (II) Salami Attack (III) SQL injection (IV) Buffer overflow	10
	b) What is Denial of Service attack? What are the different ways in which an attacker can mount a DOS attack on a system?	10
Q.6	a) Explain the working of Kerberos.	10
	b) Elaborate the steps of key generation using RSA algorithm. In RSA system the public key (E, N) of user A is defined as (7,187). Calculate $\Phi(N)$ and private key 'D'. What is the cipher text for M=10 using the public key.	10

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