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10EC832

**Eighth Semester B.E. Degree Examination, Dec.2015/Jan.2016**  
**Network Security**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting at least TWO questions from each part.**

**PART – A**

- 1 a. With a neat block diagram, discuss the functioning of network security model. List four basic tasks of designing security model. (10 Marks)
- b. Encrypt the message "ELECTRONICS" using playfair cipher with a key "INDIA". Also, give the rules for encryption. (10 Marks)
- 2 a. Encrypt the plain text "HAND" using hill cipher with the key  

$$\text{key} = \begin{vmatrix} 5 & 8 \\ 17 & 3 \end{vmatrix}$$
 Also decrypt it and verify the encryption and decryption text. (10 Marks)
- b. In S – DES, 10 – bit key is "1010000010". Find the sub keys  $k_1$  and  $k_2$ . If  

$$P_{10} = 3 \ 5 \ 2 \ 7 \ 4 \ 10 \ 1 \ 9 \ 8 \ 6$$

$$P_8 = 6 \ 3 \ 7 \ 4 \ 8 \ 5 \ 10 \ 9$$
 (10 Marks)
- 3 a. In a RSA algorithm system, the cipher text received is  $C = 10$  with a public key  $P_U = \{5, 35\}$ , deduce the plain text. Verify the answer by encryption process. (10 Marks)
- b. Explain Diffie – Hellman key exchange algorithm. Also calculate the  $Y_A$ ,  $Y_B$  and secret key (k) for  $q = 23$ ,  $\alpha = 07$ ,  $X_A = 3$  and  $X_B = 6$ . (10 Marks)
- 4 a. Write a short note on Hash function. (05 Marks)
- b. Mention the requirements for a digital signature. (05 Marks)
- c. Explain the signing and verifying functions of digital signature algorithm (DSA). (10 Marks)

**PART – B**

- 5 a. Explain the SSL architecture. (10 Marks)
- b. Highlight the key features of SET. (05 Marks)
- c. Explain in detail, the payment capture transaction supported by SET. (05 Marks)
- 6 a. Explain the architecture of a distributed intrusion-detection system. Give the major issues in the design. (10 Marks)
- b. Briefly explain the password selection strategies. (10 Marks)
- 7 a. Give the taxonomy of malicious programs and explain in brief. (10 Marks)
- b. With a schematic, explain the typical step in digital immune system. (10 Marks)
- 8 a. With a neat diagram, explain the concept of trusted systems. (10 Marks)
- b. What is firewall? Mention the capabilities and limitations of firewalls. (10 Marks)

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Important Note : 1 On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2 Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malp.