

Total No. of Questions : 8]

SEAT No. :

**PB3798**

[Total No. of Pages : 2

**[6262]-57**

**T.E. (Artificial Intelligence and Data Science Engineering)**

**CYBER SECURITY**

**(2019 Pattern) (Semester - II) (317530)**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Neat diagrams must be drawn whenever necessary.
- 3) Draw neat figures wherever necessary.
- 4) Figures to the right side indicate full marks.
- 5) Use of calculator is allowed.
- 6) Assume suitable data if necessary.

**Q1) a)** Explain Public Key Cryptography. **[6]**

b) Perform encryption and decryption using RSA algorithm for  $p=17$ ,  $q=31$ ,  $e=7$  and  $M=2$ . **[6]**

c) Explain the operations of Kerberos. **[6]**

OR

**Q2) a)** Explain operation of MD5 message digest algorithm. **[6]**

b) User A and B use the Diffie-Hellman key exchange technique with a common prime  $q=71$  and a primitive root  $\alpha=7$ . **[6]**

i) If user A has private key  $X_A=5$ , what is A's public key  $Y_A$ ?

ii) If user B has private key  $X_B=12$ , what is B's public key  $Y_B$ ?

iii) What is the shared secret key?

c) Explain X.509 Authentication Service. **[6]**

**Q3) a)** List and explain components of IPSec protocol. **[6]**

b) What is VPN? Explain components of VPN. **[6]**

c) Explain working of PGP in details. **[6]**

OR

**P.T.O.**

- Q4)** a) List and explain various participants involved in Secure Electronic Transaction (SET). [6]  
b) Describe the SSL protocol in details. [6]  
c) What is S/MIME? What are the benefits of S/MIME? [6]

- Q5)** a) Explain the architecture of firewall. [6]  
b) What is trusted system? Explain in brief. [6]  
c) Difference between IDS and IPS. [5]

OR

- Q6)** a) List and explain types of Intrusion Detection System. [6]  
b) What is access control security service? [6]  
c) Describe operation of packet filtering firewall. [5]

- Q7)** a) What is Cyber Staking. [6]  
b) Write short note on Mobile Hacking. [6]  
c) Explain Indian IT Act. [5]

OR

- Q8)** a) Explain PII impact level with examples. [6]  
b) Write short note on Cybercrime. [6]  
c) Write Advantages of cyber law. [5]

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