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**MSE-031**

**MASTER OF SCIENCE  
(INFORMATION SECURITY) (MSCIS)**

**Term-End Examination**

**December, 2023**

**MSE-031 : CYBER SECURITY USING PYTHON**

*Time : 3 Hours*

*Maximum Marks : 100*

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***Note** : Question no. 8 is compulsory. Attempt any **four** questions from the remaining **seven** questions.*

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1. (a) Write a program in Python to compare the content of two files. Support your code with suitable comments. 10
- (b) Discuss the role of sockets in network communication. What is the role of ftplib module of Python in network communication ? Write the server side socket program in Python, to bind the host with port no. 1234 and send the message

**P. T. O.**

'you are connected' to the client, once the connection request of client is accepted by server side socket. 10

2. (a) Draw and explain the components of Tkinter flow diagram. Write Python code using tkinter to create a widget button (with text "Welcome") in the window with display text "Button GUI". 10
- (b) Explain the features of Python, which makes it a suitable language for Cyber Security. What is Pen Testing ? How is Python used in Pen Testing ? Explain. 10
3. (a) Explain the role of the following Python Libraries for cyber security : 10
  - (i) Scapy
  - (ii) Beautiful soup
- (b) Describe the role of Encryption methods in cyber security. Explain the traditional techniques for Encryption. 10
4. (a) Explain RSA public key cryptosystem. How Schonhage-Strassen algorithm for Integer multiplication contributes to RSA ? 10

- (b) What are Block ciphers ? Explain differential cryptanalysis of block ciphers. 10
5. (a) Explain the following types of addressing in computer networks : 10
- (i) Physical (MAC) Address
  - (ii) Logical Address
  - (iii) Port Address
  - (iv) Socket Address
- (b) Explain the term Packet Sniffing. Differentiate between Active Sniffing and Passive Sniffing. Why is passive sniffing ineffective ? 10
6. (a) Write the stages of network log analysis. Also, describe the purpose and importance of network log analysis in network management. 10
- (b) What are web vulnerabilities ? Describe the various types of Injection attacks as web vulnerabilities. Also, list the top ten security vulnerabilities as per OWASP. 10

7. (a) Discuss the operating system modules in Python. 10
- (b) Explain the purpose and concepts of cryptography. 10
8. Write short notes on the following :  $5 \times 4 = 20$
- (a) Faker a python library for cyber security
- (b) ARP Spoofer
- (c) Cross-Origin-Resource-Sharing (CORS) policy
- (d) Broken Access and Authentication Control