Enrolment No......................................

Faculty of Science
End Sem Examination May-2024
FS3SE05 Cyber Security

Programme: B.Sc. (Hons.)   Branch/Specialisation: Forensic Science

Duration: 3 Hrs.   **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1 i.   Which of the following refers to the violation of the principle if a   **1**
           computer is no more accessible?
           (a) Access control   (b) Confidentiality
           (c) Availability   (d) All of these

     ii.   Which of the following refers to exploring the appropriate, ethical   **1**
           behaviors related to the online environment and digital media
           platform?
           (a) Cyber law   (b) Cyberethics
           (c) Cybersecurity   (d) Cybersafety

     iii. A DoS attack coming from a large number of IP addresses, making   **1**
           it hard to manually filter or crash the traffic from such sources is
           known as a _____.
           (a) GoS attack   (b) PDoS attack
           (c) DoS attack   (d) DDoS attack

     iv.   Which of the following usually observe each activity on the internet   **1**
           of the victim, gather all information in the background, and send it
           to someone else?
           (a) Malware   (b) Spyware   (c) Adware   (d) All of these

     v.   In a _____ attack, the extra data that holds some specific   **1**
           instructions in the memory for actions is projected by a cyber-
           criminal or penetration tester to crack the system.
           (a) Phishing   (b) MiTM
           (c) Buffer-overflow   (d) Clickjacking

vi. Applications developed by programming languages like ____ and   **1**
_____ have this common buffer-overflow error.
(a) C, Ruby   (b) Python, Ruby
(c) C, C++   (d) Tcl, C#

vii. _____ is widely used today for protecting data in transit in a   **1**
variety of applications such as data transfer on the Internet, and on
cellular phone networks.
(a) Encryption   (b) Data mining
(c) Internet security   (d) Architectural security

viii. Which is the largest disadvantage of symmetric Encryption?   **1**
(a) More complex and therefore more time-consuming calculations.
(b) The problem of the secure transmission of the Secret Key.
(c) Less secure encryption function.
(d) Isn't used anymore

ix. Which among the following offence under IT Act,2000 has the   **1**
maximum penalty of imprisonment up to life?
(a) Using password of another person
(b) Securing access or attempting to secure access to a protected
system
(c) Publication for fraudulent purpose
(d) Acts of cyberterrorism

x. Section 66A of IT Act,2000 has been struck down by Supreme   **1**
Court's Order dated 24th March 2015 in which case?
(a) Shreya Singhal vs. Union of India
(b) Puttuswamy v. Union of India
(c) Shayara Bano vs Union of India
(d) Indra Sawhney and Union of India

Q.2 i.   What is cyber security?   **2**
ii. What is email spoofing?   **3**
iii. Who is cybercriminal? Explain the classification of cybercriminals.   **5**
OR   iv. What is CIA triad? Discuss in detail.   **5**

Q.3 i.   What is identity fraud?   **2**
ii. What is the software vulnerability? Explain the type of software   **8**
vulnerabilities.
OR   iii. What are the trojans? Explain any four types of trojans.   **8**

Q.4 i.   Explain the memory leak.   **3**
ii. What is buffer error? How do attackers exploit a buffer error to hack   **7**
a computing system?
OR   iii. What is a replay attack? Explain the process of a replay attack.   **7**

Q.5 i.   What is cryptography? Explain types of cryptography.   **4**
ii. What is hashing? Explain SHA-1 and MD-2.   **6**
OR   iii. What is the data encryption standard algorithm? Explain each step   **6**
of encryption using the DES algorithm with necessary diagrams.

Q.6   Attempt any two:
i.   Explain all the computer-related offences and punishments under   **5**
section 67 and its subsection of the Indian IT ACT 2000.
ii. What are the regulations and standards for health industry?   **5**
iii. What is the ISO 27000 series of standards? How will ISO/IEC 27001   **5**
benefit any organization?

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Marking Scheme

FS3SE05 Cyber Security

Q.1 i) Which of the following refers to the violation of the principle if a computer is no more accessible? **1**

Availability

ii) Which of the following refers to exploring the appropriate, ethical behaviors related to the online environment and digital media platform? **1**

Cyberethics

iii) A DoS attack coming from a large number of IP addresses, making it hard to manually filter or crash the traffic from such sources is known as a _____ **1**

DDoS attack

iv) Which of the following usually observe each activity on the internet of the victim, gather all information in the background, and send it to someone else? **1**

Spyware

v) In a _____ attack, the extra data that holds some specific instructions in the memory for actions is projected by a cyber-criminal or penetration tester to crack the system. **1**

Buffer-overflow

vi) Applications developed by programming languages like ____ and _____ have this common buffer-overflow error. **1**

C, C++

vii) _____ is widely used today for protecting data in transit in a variety of applications such as data transfer on the Internet, and on cellular phone networks. **1**

Encryption

viii) Which is the largest disadvantage of symmetric Encryption? **1**

The problem of the secure transmission of the Secret Key.

ix) Which among the following offence under IT Act,2000 has the maximum penalty of imprisonment up to life? **1**

Acts of cyberterrorism

x) Section 66A of IT Act,2000 has been struck down by Supreme Court's Order dated 24th March, 2015 in which case? **1**

Shreya Singhal vs. Union of India

Q.2 i. What is Cybersquatting? **2**

ii. What is email spoofing? **3**

email spoofing   3 mark

iii. Who is cybercriminal? Explain the classification of cybercriminals. **5**

Introduction	1 mark
Hungry for recognition	2 mark
Not interested in recognition	1 mark
The insiders	1 mark

OR iv. What are the Pornographic offences? Explain each step of the paedophile's work. **5**

Pornographic offences	2 mark
Paedophile's work	3 mark

Q.3 i. What is identity fraud? **2**

identity fraud   2 mark

ii. What is the software vulnerability? Explain the type of software vulnerabilities? **8**

software vulnerability	2 mark
types of software vulnerability	6 mark

OR iii. What are the Trojans? Explain the type of Trojans. **8**

Trojans	2 mark
Types of Trojans	6 mark

Q.4 i. Explain the Memory leak. **3**

Introduction	1 mark
Concept	2 mark

ii. What is buffer error? How do attackers exploit a buffer overflow to hack a computing system? **7**

Buffer error	3 mark
Buffer error attack	4 mark

OR iii. What is a replay attack?   2 marks **7**

Explain the process of a replay attack.   5 marks

Q.5 i. What is cryptography? Explain types of cryptography. **4**

Introduction	2 mark
Types of cryptography	2 mark

ii. What is hashing? Explain SHA-1 and MD-2? **6**

Hashing	2 mark
SHA-1	2 mark
MD-2	2 mark

OR iii. What is the Data Encryption Standard algorithm? Explain each step of encryption using the DES algorithm with necessary diagrams. **6**

Introduction	2 mark
Example	3 mark
Diagram	1 mark

Q.6

i. Explain all the computer-related offences and punishments under section 67 and its subsection of the Indian IT ACT 2000.   **5**

Explain Section 67, 67A, 67B, 67C   5 mark

ii. What is a digital & electronic signature as per IT Act, 2000? Explain the advantages of digital signature.   **5**

Introduction   2 mark

Advantages of Digital signature   3 mark

iii. What is the ISO 27000 series of standards? How will ISO/IEC 27001 benefit any organization?   **5**

Definition of ISO 27000   1 mark

Significance of ISO 27000   2 mark

Benefits of ISO 27001   2 mark

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