

Roll No.

Total Pages : 04

BT-3/D-25

43222

INTRODUCTION TO CYBER SECURITY

PS-CS-CYS-201A

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Explain the nature and scope of cyber crime in the digital age. How has the evolution of technology expanded opportunities for cyber criminals ? 8
- (b) What is cyber terrorism ? Evaluate its potential impact on national security and suggest countermeasures that governments can implement. 7
2. (a) Discuss the methods used in cyber extortion. What preventive and legal measures can organizations adopt to minimize this threat ? 8

- (b) Describe the major threats to information systems today. How can these threats be mitigated using both technical and human-centered approaches ? 7

Unit II

3. (a) Explain the concept of unauthorized access to computer systems. Discuss the common techniques used by attackers to gain unauthorized entry and suggest preventive security controls. 8
- (b) Evaluate the impact of cyber stalking and online obscenity on individuals and society. How can legal and technological measures work together to control these crimes ? 7
4. (a) Describe, how viruses, worms and Trojan horses operate. Compare their modes of propagation and the preventive measures against each. 8
- (b) Explain steganography with practical examples. How is it used both as a tool for security and as a means of concealing illegal information ? 7

Unit III

5. (a) Differentiate between passive and active cyber-attacks. Provide real-world examples of each and discuss their impact on data confidentiality, integrity and availability. 8
- (b) Describe, how firewalls and Virtual Private Networks (VPNs) contribute to network security. What are the limitations of these technologies in modern cyber environments ? 7
6. (a) Explain the importance of application security in protecting database, e-Mail and internet-based systems. Illustrate your answer with practical examples of common vulnerabilities and their countermeasures. 8
- (b) Explain the various hardware protection mechanisms used to safeguard computing devices from tampering or unauthorized use. Include examples like TPM, secure boot and biometric authentication. 7

Unit IV

7. (a) Explain the major stages of the digital forensic life cycle with suitable examples from real-world cybercrime investigations. 8

- (b) Critically analyze the need for cyber laws in the modern digital world. Illustrate your answer with examples of cybercrimes that necessitated legal reforms. 7
8. (a) Describe the challenges faced by investigators during digital forensic analysis in cloud computing and mobile environments. 8
- (b) Discuss the concept and legal validity of digital signatures under the Indian IT Act. How do they ensure authenticity and integrity in electronic transactions ? 7



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Total Pages : 02

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43223

DATA STRUCTURE

PC-CS-CYS-203A

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt any *Five* questions, selecting *one* question from each Unit. All questions carry equal marks.

Unit I

1. Explain how a dynamic array works. Compare it with a static array with respect to memory allocation and performance. 15
2. Write an algorithm to sort an arrays using insertion sort. Analyze its complexity. 15

Unit II

3. Solve the expression $[2 + (3 * 1) - 9]$ using stack. 15
4. Write an algorithm to sort an arrays using merge sort. Analyze its complexity. 15

Unit III

5. (a) Discuss the advantages of linked lists over arrays. Give examples where linked lists are preferable. 5
- (b) Write an algorithm to implement doubly linked list operation like(insertion, deletion). 10
6. Write a program to implement stack using linked list. 15

Unit IV

7. Explain inorder, preorder, and postorder traversal techniques with recursive algorithms. 15
8. What is difference between graph and trees ? Write an algorithm of Warshall to find shortest path. 15



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Total Pages : 03

BT-3/D-25

43224

COMPUTATIONAL THINKING WITH
PYTHON
PC-CS-CYS-205A

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt any *Five* questions. All questions carry equal marks.

1. (a) Discuss the various data types that Python supports. Explain the different operators available in the language and provide examples of their usage in expressions. 8
- (b) What are tokens in Python ? Describe the different types of tokens available in Python with suitable examples. 7
2. (a) Explain the advantages of Python as a programming language compared to conventional languages and illustrate with examples how Python's dynamic typing and rich standard library aid rapid development. 8

- (b) Write a Python script to read a string from the user and print all even-length words in the string. Explain each step involved. 7
3. (a) Write short programs to demonstrate selection control (if, if-else, elif, nested if) used in Python programming, supporting your answer with code snippets. 8
- (b) Illustrate the differences among Lists, Tuples, Dictionaries with suitable examples. 7
4. (a) Write a Python program using a for loop that prints all prime numbers below 100. Explain, how the for loop statements work in your code ? 7
- (b) Write a program to input 5 digit number through keyboard. Obtain the reversed number and to determine whether the original number and reversed number are equal or not. 8
5. (a) Write a recursive Python function that calculates the factorial of a given number. Include a brief explanation of recursion. 7

- (b) Explain anonymous functions using lambda and demonstrate practical use cases together with higher-order functions. **8**
6. (a) Explain the different types of arguments that can be used in Python functions, with suitable examples. **8**
- (b) Write a function that returns the sum of digits of a number, passed to it as arguments. **7**
7. (a) Explain the concept of exception handling in Python and its importance in writing robust code. **10**
- (b) What is the use of regular expressions ? Give suitable example. **5**
8. (a) Explain the process of reading and writing CSV files in Python. Write a Python program that reads data from a CSV file and writes filtered results to a new CSV file. **8**
- (b) Write a program in Python to open a file, count the number of lines in it. **6**



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Total Pages : 03

BT-3/D-25

43225

SOFTWARE ENGINEERING

PC-CS-CYS-207A

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Explain the major causes of the Software Crisis and how modern practices have helped mitigate them. 7
- (b) Compare and contrast the Waterfall Model and Spiral Model of software development. Highlight situations where each is preferable. 8
2. (a) Discuss the evolving role of software in modern society with suitable examples. 7
- (b) Explain the V-Model of SDLC. How does it improve upon traditional linear models in terms of testing and verification ? 8

Unit II

3. (a) Define Requirement Engineering. Describe the main stages involved in the requirement engineering process. 7
- (b) Prepare a brief SRS outline for an online examination system based on IEEE standards. 8
4. (a) Explain the key components of Software Quality Assurance (SQA). 7
- (b) Discuss the SEI-CMM model and its significance in assessing software process maturity. 8

Unit III

5. (a) Explain Coupling and Cohesion in software design. Why are they critical for modularization ? 7
- (b) Differentiate between Function-Oriented Design and Object-Oriented Design approaches with suitable examples. 8
6. (a) Discuss the concept of Cyclomatic Complexity. How is it used to measure the complexity of software modules ? 7
- (b) Explain the COCOMO model for software cost estimation. Illustrate with an example. 8

Unit IV

7. (a) Discuss key principles to be followed during software construction to minimize complexity. 7
- (b) Explain various levels of testing (Unit, Integration, System and Acceptance) in detail. 8
8. (a) Identify the main issues and challenges in software maintenance. 7
- (b) Write short notes on Regression Testing and its role during maintenance. 8



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Total Pages : 03

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43227

**COMPUTER ORGANIZATION AND
ARCHITECTURE
ES-CS-CYS-211A**

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Explain fixed-point and floating-point number representations. How does IEEE standard represent floating-point numbers ?

(b) Write a brief note on computer generations.

8+7=15

2. (a) Describe Booth's algorithm for multiplication. Using Booth algorithm multiply -23 by 29 using 6-bit binary representations of each number.

- (b) Write a note on restoring and non-restoring division algorithm. 8+7=15

Unit II

3. (a) Explain the instruction cycle with the phases: fetch, decode and execute. Provide a flowchart.
- (b) Describe the organization of computer registers and the common bus system with a neat diagram. 8+7=15
4. (a) Discuss memory reference, register reference, and input-output instructions with examples.
- (b) Explain microprogrammed control organization. What are microinstructions, and how are they sequenced ? 8+7=15

Unit III

5. (a) Describe the general register and stack organization of the CPU with suitable diagrams.
- (b) Compare CISC and RISC architectures. What are their advantages and limitations ? 8+7=15

6. (a) Explain instruction pipelining. What are hazards in pipelining, and how are they handled ?
- (b) Discuss the basics of vector processing, array processors, and parallel processing with applications.

8+7=15

Unit IV

7. (a) Explain the I/O interface and its role in CPU-IOP communication.
- (b) Differentiate between programmed I/O, interrupt-driven I/O, and direct memory access (DMA).

8+7=15

8. (a) Describe asynchronous data transfer methods: strobe control, handshaking and asynchronous serial transfer.
- (b) Explain priority interrupt methods such as daisy chaining and parallel priority interrupts with diagrams.

8+7=15



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Total Pages : 2

45267

BT-5/D-25

DESIGN AND ANALYSIS OF ALGORITHMS

Paper : PC-CS-CYS-301 A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *five* questions in all, selecting at least *one* question from each unit. All questions carry equal marks.

UNIT-I

1. (a) What are Asymptotic Notations? Explain Big-O, Omega, and Theta with examples. 8
- (b) Describe the steps of Strassen's matrix multiplication algorithm. 7
2. (a) Write the recurrence relation for the Merge Sort algorithm. 7
- (b) Explain the working of a Priority Queue with suitable application. 8

UNIT-II

3. (a) Explain the Matrix Chain Multiplication problem using dynamic programming. 8
- (b) Discuss the Task Scheduling problem and its solution using a greedy approach. 7

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4. (a) Explain Dynamic Programming and illustrate it using the Longest Common Subsequence (LCS) problem. 8
- (b) Explain the concept of the Travelling Salesman Problem (TSP). 7

UNIT-III

5. (a) Explain Dijkstra's algorithm for finding the single-source shortest path. 7
- (b) Describe Kruskal's algorithm for finding the Minimum Spanning Tree (MST). 8
6. Explain NP-hard and NP-complete problems with suitable examples. 15

UNIT-IV

7. (a) Explain the concept of the Zero-One Principle in sorting networks. 8
- (b) Define Bitonic Sorting Network and explain its construction steps. 7
8. (a) What is the Maximum Bipartite Matching problem? Give an example. 7
- (b) Discuss the working of the Ford-Fulkerson algorithm and analyze its complexity. 8

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Total Pages : 3

45268

BT-5/D-25

SECURITY THREATS AND TRENDS

Paper : PC-CS-CYS-303A

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *five* questions in all, selecting at least *one* question from each unit. All questions carry equal marks.

UNIT-I

1. (a) Identify and explain three common sources of security threats. How can organizations proactively mitigate each of these sources? 8
(b) What is ARP spoofing and session hijacking? Demonstrate how these attacks work and propose effective mitigation techniques. 7
2. (a) Discuss the motives behind cybercrimes. How do these motives influence the type and severity of attacks on target assets? 8
(b) Evaluate the impact of email and web threats on organizational security. How can businesses secure their communication channels to reduce these threats? 7

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UNIT-II

3. (a) Explain the role of risk assessment in security threat management. How can it help in prioritizing security efforts in an organization? 8
- (b) Describe the steps involved in identifying and modeling threats to a web application. How does threat modeling support secure design? 7
4. (a) Compare and contrast two commonly used vulnerability assessment tools. Highlight their features, use cases, and limitations. 8
- (b) How does security threat correlation help in identifying advanced persistent threats (APTs)? Provide a practical example involving log analysis. 7

UNIT-III

5. (a) Differentiate between authorization and authentication. Explain their types with real-world examples of how they are implemented in web-based design applications? 8
- (b) What are Security Requirements Specifications (SRS), and why are they critical during the software development life cycle? Illustrate with an example. 7

6. (a) Why is security certification important for organizations? Discuss how certifications like ISO/IEC 27001 or SOC 2 help in achieving compliance and improving trust. 8
- (b) How do firewalls and Intrusion Detection Systems (IDS) differ in functionality? Provide real-time scenarios where each would be best applied. 7

UNIT-IV

7. (a) Explain how multilevel security (MLS) operates in a trusted computing environment. Provide a practical scenario, such as in military or healthcare systems. 8
- (b) What are trusted systems in cybersecurity? Discuss the components and features that make a system 'trusted', with examples from operating systems or networks. 7
8. (a) Design a security awareness and training program for a mid-sized organization. What topics should be covered, and how would you measure its effectiveness? 8
- (b) What physical and infrastructure security measures should a data center implement to protect against unauthorized access and environmental threats? 7
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BT-5/D-25**INFORMATION SECURITY AND DATA HIDING****Paper-ES-CS-CYS-305A**

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt any *five* questions by selecting at least *one* question from each unit.

UNIT-I

1. (i) Write and explain Blowfish algorithm. (8)
(ii) Discuss various types of security attacks. (7)
2. (i) Explain the working of DES algorithm. (8)
(ii) Discuss various models of operation used in Block Cipher. (7)

UNIT-II

3. (i) Differentiate SHA-512 and HMAC algorithm. (8)
(ii) Discuss various public key cryptography principles. (7)

4. (i) Explain IP security architecture. (8)
(ii) Elucidate the working of elliptic curve cryptography. (7)

UNIT-III

5. (i) Discuss various data hiding models. (7)
(ii) Differentiate steganography and cryptography with example. (8)
6. (i) Discuss various techniques for hiding images. (7)
(ii) Write and explain watermarking algorithm. (8)

UNIT-IV

7. (i) Discuss various business models used in digital rights management. (8)
(ii) Describe different applications of data hiding technology in field of medicine. (7)
8. (i) Discuss various applications of data hiding Technology in field of e-commerce. (7)
(ii) Explain the working of digital signature. (8)

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45270

BT-5/D-25

MICROPROCESSOR AND INTERFACING

Paper : ES-CS-CYS-307A

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *five* questions in all, selecting at least *one* question from each section.

SECTION-A

1. (a) Draw and explain the block diagram of the 8086 microprocessor, clearly highlighting the functions of the Bus Interface Unit (BIU) and the Execution Unit (EU). (8)
(b) Describe the function of the following 8086 registers: Code Segment (CS), instruction Pointer (IP), and Stack Pointer (SP). (7)
2. (a) What is the purpose of the 8284 clock generator chip in an 8086 system? Explain how it generates the CLK and RESET signals for the 8086. (8)
(b) Differentiate between the 8086's Minimum Mode and Maximum Mode system configurations. What additional component is used in Maximum Mode? (7)

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SECTION-B

3. (a) Draw and explain the 8086 Read cycle timing diagram in Minimum Mode, describing the role of signals like ALE, RD, and DT/R. (8)
- (b) Compare and contrast the timing diagrams for a Read cycle and a Write cycle in Minimum Mode. (7)
4. (a) Describe the steps involved in interfacing a 32 KB SRAM chip with the 8086 microprocessor. Mention the necessary control signals. (8)
- (b) Explain the concept of memory segmentation in the 8086. How does it allow the 8086 to access 1 MB of memory with a 16-bit data bus? (7)

SECTION-C

5. (a) Generate the HEX codes for the following instructions :
- (i) Mov AX, DX. (8)
- (ii) Mov CX, [BX] [SI]. (8)
- (b) Define Addressing Modes and explain all the valid addressing modes for 8086 microprocessor? Explain the different assembler directives for 8086 microprocessor? (7)
6. (a) Write an 8086 assembly program to find the largest number from an array of numbers. (8)

- (b) Mention an example for the 8086 instructions :
AAA, CWD, JNBE, LAHF, MOVS, RCL, CMP.
(7)

SECTION-D

7. (a) Describe the control word format and the different operating modes of Intel's 8255 Programmable Peripheral Interface (PPI).
(8)
- (b) Explain the steps to interface a 4×4 matrix keyboard with the 8086 using the 8255 PPI. How is a key press identified and decoded?
(7)
8. (a) Draw and explain the 8086 Interrupt Vector Table (IVT) structure. What is the significance of the Type number of an interrupt? (8)
- (b) Explain the process of interfacing an 8-bit DAC (Digital-to-Analog Converter) with the 8086 to generate a triangular wave. (8)
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45271

BT-5/D-25

**BUSINESS INTELLIGENCE AND
ENTREPRENEURSHIP**

Paper : HM-902

Time : Three Hours]

[Maximum Marks : 75

Note : The students will be required to attempt *five* questions, selecting at least *one* from each unit.

UNIT-I

1. Critically discuss how entrepreneurship contributes to innovation, employment, regional development, and inclusive growth. Provide examples of successful Indian entrepreneurs riving national transformation.
2. Discuss the concept, structure, and significance of Entrepreneurial Development Programmes (EDPs) Evaluate how EDPs contribute to capacity building, skill enhancement, and promoting entrepreneurship among youth, women, and rural populations in India.

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UNIT-II

3. Explain the importance and methods of conducting feasibility studies and marketing research before launching a new enterprise. Discuss industry analysis, competitor analysis, market segmentation, and positioning as crucial inputs for decision-making.
4. Describe the methods of project appraisal and report preparation for a new venture. Discuss financial, technical, and economic feasibility aspects, and elaborate on the structure of a professional project report.

UNIT-III

5. Explain in detail the procedural and legal formalities for launching a small enterprise in India. Include registration processes, NOC requirements, pollution control clearances, machinery and equipment selection, and factory act compliance.
6. Identify and analyze the major problems faced by SSIs and MSMEs in India. Discuss issues related to finance, marketing, technology, infrastructure, human resources, and regulatory constraints, along with suggestions for policy reforms.

UNIT-IV

7. Analyze the legal issues related to forming a business entity in India Compare procedures, advantages, and limitations of various forms proprietorship, partnership, LLP, and private/public limited companies from an entrepreneurial perspective.

 8. Discuss the importance of Intellectual Property Rights (IPR) for entrepreneurs and small businesses. Explain patents, copyrights, and trademarks with reference to Indian laws, and highlight their role in protecting innovation and enhancing business value.
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45272

BT-5/D-25

COMPUTER NETWORKS

Paper : PC-CS-CYS-311A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *five* questions in all, selecting at least *one* question from each unit. All questions carry equal marks.

UNIT-I

1. (a) Distinguish between point-to-point links and multipoint links. Give relevant diagrams. (7)
- (b) What do you mean by TCP connection management? Explain the function of the TCP/IP protocol. (8)
2. (a) Discuss various types of network topologies in a computer network. (7)
- (b) Explain the ISO-OSI model of a computer network with a neat diagram. (8)

UNIT-II

3. (a) What are the Elementary Data Link Layer Protocols? Discuss it. (7)

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- (b) Explain the term sliding window. Also illustrate and explain the operation of selective repeat. (8)
4. (a) What is the need of Flow control? Explain the common approaches for flow control in data link layer. (7)
- (b) Write short notes on the following :
- (i) Stop & wait ARQ.
 - (ii) Go-back-N ARQ.
 - (iii) Pure ALOHA.
 - (iv) CDMA. (2×4=8)

UNIT-III

5. (a) In a block of addresses, we know the IP address of one host is 25.34.12.56/16. What are the first address (network address) and the last address (limited broadcast address) in this block? (7)
- (b) For the network given in Fig. 1, show how the link-state algorithm builds the routing table for node D. (8)

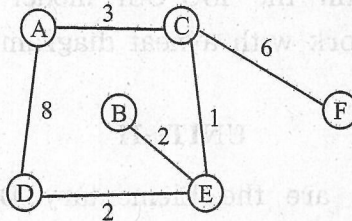


Fig. 1

6. (a) Draw a neat Network diagram to explain the routing functionality of Link State Routing Algorithm. (7)
- (b) Elucidate Distance Vector Routing Algorithm with example. (8)

UNIT-IV

7. (a) Explain the working of Electronic mail. How SMTP used in Email applications. (7)
- (b) What do you mean by Network Security? Explain Public and Private Key with an Example. (8)
8. (a) Describe the role of a DNS on a computer network with reference to its components. (7)
- (b) Write short notes :
- (i) RPC.
 - (ii) Token Bucket Algorithm.
 - (iii) S/MIME.
 - (iv) Digital Signature. (2×4=8)
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47394

BT-7/D-25

UNIVERSAL HUMAN VALUES-II :

UNDERSTANDING HARMONY

Paper-HSS-403A

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt any *five* questions selecting at least *one* question from each unit.

UNIT-I

1. Define value education and skill education. Discuss their order of priority in your life. Discuss the guidelines for value education. (5+5+5=15)

2. What does a fulfilling life mean to you? List out the top five desires which comes to your mind while thinking of fulfilling life. Connect these desires to your basic aspirations. (7+8=15)

UNIT-II

3. List your 10 desires and classify them based on Self or body. Differentiate between various sources of imagination. Classify your desires based on the source of their imagination. (5+5+5=15)

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4. Discuss your program of self regulation in detail with suitable examples. Discuss the harmony of self also. (10+5=15)

UNIT-III

5. Discuss the concept of right, over and under evaluation within self. How this evaluation leads to harmony/disharmony in human self? Discuss the feeling of trust as foundation value of the relationship.

(8+7=15)

6. Write short notes on :

(a) Affection and Care.

(b) Love as complete value.

(c) Justice in relationship. (5+5+5=15)

UNIT-IV

7. Discuss the concept of existence as coexistence. Discuss the strategy to achieve universal human order through human values. (8+7=15)

8. Discuss the various orders of nature with their properties. Discuss the harmony between them and role of human being in maintaining this harmony.

(8+7=15)

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Total Pages : 2

47407

BT-7/D-25

CYBER ATTACKS – OWASP FRAMEWORK

Paper : PC-CS-CYS-401A

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *five* questions in all, selecting at least *one* question from each unit.

UNIT-I

1. (a) What is OWASP? Write its Goals and Benefits. (10)
(b) Explain the term Cryptographic failures. (5)
2. Elaborate the concept of Insecure Design. How can it be avoided explain in detail. (15)

UNIT-II

3. Explain Broken Access Control with a practical example and how to prevent it? (15)
4. Write the process of user authentication and What are common authentication failures? (15)

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UNIT-III

5. Explain the importance of security logging and monitoring. List few recommendations for effective logging. (15)
6. Explain the term SQL Injection in detail and its prevention methods. (15)

UNIT-IV

7. Explain the following :
 - (a) JWT Security.
 - (b) Remote File Inclusion. (15)
 8. Explain Security Misconfiguration in detail. Provide examples ways to avoid it. (15)
-

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47410

BT-7/D-25

ETHICAL HACKING

Paper : OE-CS-CYS-403

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *five* questions in all, selecting atleast *one* question from each unit. All questions carry equal marks.

UNIT-I

1. Define Ethical Hacking. What are its types and objectives? Discuss how ethical hacking contributes to organizational cybersecurity. 15
2. What is footprinting? Describe passive and active footprinting techniques. Explain how information is gathered from DNS, WHOIS databases, and social media. 15

UNIT-II

3. What is a Security Operations Center (SOC)? Discuss its architecture, key functions, and importance in enterprise cybersecurity. 15

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4. Explain the process of log collection and analysis in a SOC. Discuss the types of logs (e.g., firewall, IDS/IPS, endpoint, application logs) and their role in incident detection. 15

UNIT-III

5. Explain WiFi Hacking techniques. Discuss how WPA/WPA2 security is compromised and the preventive measures to secure wireless networks. 15
6. What is vulnerability assessment and penetration testing (VAPT)? Describe the differences between them, and explain the methodology followed during a penetration test. 15

UNIT-IV

7. Discuss the legal and ethical responsibilities of an ethical hacker. 15
8. Discuss real-world Bluetooth hacking incidents or case studies. Analyze how the attacks were executed and what could have been done to prevent them. 15

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BT-7/D-25

INTRODUCTION TO CYBER LAWS

Paper-PE-CS-CYS-415A

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt any *five* questions by selecting at least *one* question from each unit.

UNIT-I

1. (i) What are different categories of cyber crime?
(8)
- (ii) What are various authorities under IT Act?
(7)
2. (i) What is IT Act, 2000? Discuss its important amendments.
(7)
- (ii) Define offence. Discuss its different types.
(8)

UNIT-II

3. (i) Discuss various case laws on cyber space jurisdiction under IT Act.
(7)

- (ii) Define with example :
(a) Salami attacks.
(b) Cyber stalking. (2×4=8)

4. (i) What is E-commerce? Discuss various laws related to E-commerce. (7)
(ii) Differentiate digital signature and electronic signature with example. (8)

UNIT-III

5. (i) Differentiate patent and copyright with example. (7)
(ii) What are different types of trademark? List any 5 classes of trademark with example. (8)
6. (i) Write short notes on "Cyber Law : An International Perspective". (7)
(ii) How the sensitive information is classified? Discuss various laws related to sensitive information. (8)

UNIT-IV

7. Write short notes on :
(a) Net neutrality.
(b) Censorship in Cyberspace. (2×7.5=15)

8. (i) Discuss various types of intellectual property rights. (7)
- (ii) Discuss surveillance rights in cyber ethics? (8)
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47419

BT-7/D-25

CLOUD SECURITY

Paper : PE-CS-CYS-425A

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *five* questions, selecting at least *one* questions from each unit

UNIT-I

1. Explain the role of Security Groups and Network ACLs in securing AWS VPC. Compare and contrast their features with use cases. (15)
2. What is AWS Key Management Service (KMS)? Explain how KMS handles encryption keys and integrates with other AWS services for secure data encryption. (15)

UNIT-II

3. What is data loss prevention (DLP) in cloud environments? Explain how DLP solutions work and where they are deployed in cloud architecture. (15)

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4. Compare and contrast public, private, and hybrid cloud models in terms of security. Which model is more suitable for highly regulated industries? Justify your answer. (15)

UNIT-III

5. What are the major threats in cloud computing as per the Cloud Security Alliance (CSA)? Discuss any four threats from the "Top Threats to Cloud Computing" report. (15)
6. Define Data Protection in the context of cloud computing. Why is data protection law crucial in public cloud environments? Explain the General Data Protection Regulation (GDPR) and its relevance to cloud security. (15)

UNIT-IV

7. Describe network security controls in cloud environments. Include firewalls, intrusion detection/prevention systems (IDS/IPS), and segmentation techniques. (15)
8. Explain the process of cloud incident response. What are the key steps involved in detecting and responding to cloud security breaches? (15)

Roll No.

Total Pages : 2

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INTRUSION DETECTION AND PREVENTION

Paper-PE-CS-CYS-422A

Time Allowed : 3 Hours]

[Maximum Marks : 75

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. All questions carry equal marks.

UNIT-I

1. (a) Explain the architecture of an Intrusion Detection and Prevention System (IDPS). 8
- (b) What are the key function of IDPS ? 7
2. Discuss various types of IDPS technologies with relevant use cases. 15

UNIT-II

3. (a) Explain the architecture of a Network behaviour analysis system. 8
- (b) Explain OpenCanary and its applications. 7
4. (a) Describe the process of detecting instructions using honeypots. 8

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- (b) How does Traffic Capture help in intrusion detection ? Discuss with examples. 7

UNIT-III

5. (a) What are Snort plugins, pre-processors and Output modules ? 7
- (b) Discuss Probabilities and Deterministic Packet Marking in IDPS. 8
6. Explain integration of Firewalls, Routers, and Honeypots in IDPS. 15

UNIT-IV

7. (a) Discuss various threats against WLANs with suitable examples. 8
- (b) Explain detection of Hybrid Wireless attacks in detail. 7
8. (a) Explain Security concerns related to cell phones and PDAs. 8
- (b) Write short notes on : 802.11 Wireless Infrastructure Attacks. 7