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| LOGO.jpg | **GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY**  (**AN AUTONOMOUS INSTITUTION**)  **(Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**  **(Accredited by NAAC with “A” Grade, NBA (EEE,ECE &ME) & ISO9001:2008CertifiedInstitution)** |
| **QUESTION BANK(DESCRIPTIVE)**  **Introduction to Cyber Security**  **Subject Name with Code: 23A3701T Course & Branch: B. Tech & CSE Year& Semester: III-I Regulation: RG23** | |

**UNIT - I**

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| **UNIT-I: Cyber security Essentials and Cube**  The Cyber security World, Cyber Criminals versus Cyber security Specialists, Common Threats, Spreading Cyber security Threats, The Three Dimensions of the Cyber security Cube, CIA Triad, States of Data, Cyber security Counter measures, IT Security Management Framework. | | |
| **S. No.** | **Question** | **[BT Level] [CO][ Marks]** |
| **2 Marks Questions (Short)** | | |
|  | Define cybersecurity. | **L1, CO1, 2M** |
|  | Explain the three components of the CIA triad. | **L2, CO1, 2M** |
|  | List any three common cyber threats. | **L1, CO1, 2M** |
|  | Differentiate between cybercriminals and cybersecurity specialists. | **L2, CO1, 2M** |
|  | What is the role of the cybersecurity cube? | **L1, CO1, 2M** |
|  | What is meant by data in transit and data at rest? | **L1, CO1, 2M** |
|  | What is multifactor authentication? | **L1, CO1, 2M** |
|  | **Name** any two cybersecurity counte rmeasures. | **L1, CO1, 2M** |
|  | List any two types of malware. | **L1, CO1, 2M** |
|  | What is the role of a cybersecurity specialist? | **L1, CO1, 2M** |
| **Descriptive Questions (Long)** | | |
|  | Explain in detail the CIA triad and its significance in cybersecurity with suitable examples. | **L2, CO1, 10M** |
|  | Explain the cybersecurity cube and describe its three dimensions. | **L2, CO1, 10M** |
|  | Discuss various types of cybercriminals and compare them with cybersecurity professionals. | **L2, CO1, 10M** |
|  | Explain the concept of data integrity and describe methods to ensure it. | **L2, CO1, 10M** |
|  | Describe the different states of data and the challenges involved in protecting them. | **L1, CO1, 10M** |
|  | Explain the importance of the IT Security Management Framework with examples. | **L2, CO1, 10M** |
|  | **Explain** how countermeasures can be applied to reduce risks from cyberattacks. | **L2, CO1, 10M** |
|  | Explain how spreading cyber threats can be controlled at an organizational level. | **L2, CO1, 10M** |
|  | Describe common threats in cyberspace and discuss their impact on digital assets. | **L1, CO1, 10M** |
|  | Explain the concept of data availability and describe methods to ensure it. | **L2, CO1, 10M** |

**UNIT - II**

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| **UNIT-II : Cyber security Threats, Vulnerabilities, Attacks and Protecting Secrets**  Introduction, Governance, Managing Cloud Security Risk, Compliance, Legal Issues in Cloud, Audit, CSA Tools. | | |
| **S. No.** | **Question** | **[BT Level] [CO][ Marks]** |
| **2 Marks Questions (Short)** | | |
|  | Define cybersecurity threats. | **L1, CO2, 2M** |
|  | Explain phishing in the context of cybersecurity? | **L2, CO2, 2M** |
|  | List any two types of cybersecurity vulnerabilities. | **L1, CO2, 2M** |
|  | Define the term "Zero-day exploit." | **L1, CO2, 2M** |
|  | Explain three factors used in Multi-Factor Authentication (MFA)? | **L2, CO2, 2M** |
|  | What is the difference between DoS and DDoS attacks? | **L1, CO2, 2M** |
|  | List any two principles of cybersecurity governance. | **L1, CO2, 2M** |
|  | Write any two benefits of a cybersecurity audit. | **L1, CO2, 2M** |
|  | What does PCI-DSS stand for? | **L1, CO2, 2M** |
|  | List any two cloud security risk solutions. | **L1, CO2, 2M** |
| **Descriptive Questions (Long)** | | |
|  | Discuss the various types of cybersecurity threats, vulnerabilities and how they can be exploited. | **L2, CO2, 10M** |
|  | Describe the techniques used for protecting secrets in an organization. | **L2, CO2, 10M** |
|  | Describe the elements and importance of cybersecurity governance. | **L2, CO2, 10M** |
|  | Explain about the cloud security risks and propose strategies to manage them. | **L2, CO2, 10M** |
|  | Discuss the steps involved in building a cybersecurity governance program with a neat sketch. | **L1, CO2, 10M** |
|  | Explain legal issues in cloud computing and how they affect compliance and data privacy. | **L2, CO2, 10M** |
|  | Differentiate internal vs. external cybersecurity audits. | **L2, CO2, 10M** |
|  | What are the importance of cybersecurity compliance and describe key frameworks like GDPR, HIPAA, and ISO 27001 | **L1, CO2, 10M** |
|  | Explain about CSA Tools? Discuss how they assist in improving cloud security and regulatory compliance. | **L2, CO2, 10M** |
|  | Discuss the scope and components of a cybersecurity audit. How do audits contribute to strengthening an organization’s security. | **L2, CO2, 10M** |

**UNIT - III**

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| **UNIT-III: Data Integrity**  Types of Data Integrity Controls, Digital Signatures, Certificates, Database Integrity Enforcement. | | |
| **S. No.** | **Question** | **[BT Level] [CO][ Marks]** |
| **2 Marks Questions (Short)** | | |
|  | Define data integrity. | **L1, CO3, 2M** |
|  | What is the difference between physical integrity and logical integrity? | **L1, CO3, 2M** |
|  | List any two core components of data integrity. | **L1, CO3, 2M** |
|  | What is data masking? | **L1, CO3, 2M** |
|  | Define digital signature | **L1, CO3, 2M** |
|  | Explain any two benefits of digital signatures. | **L2, CO3, 2M** |
|  | What is a digital certificate? | **L1, CO3, 2M** |
|  | Mention two threats to data integrity | **L1, CO3, 2M** |
|  | Differentiate between digital signature and electronic signature. | **L2, CO3, 2M** |
|  | What is a message digest? | **L1, CO3, 2M** |
| **Descriptive Questions (Long)** | | |
|  | Explain the types of data integrity with examples. | **L2, CO3, 10M** |
|  | Discuss the various data integrity controls and their significance | **L2, CO3, 10M** |
|  | Explain digital signature and working of a digital signature with necessary steps . | **L2, CO3, 10M** |
|  | Describe the threats to data integrity and how organizations can mitigate them. | **L2, CO3, 10M** |
|  | Determine core components of data integrity and Explain data integrity controls | **L3, CO3, 10M** |
|  | Discuss the benefits, assurances, and drawbacks of digital signatures. | **L2, CO3, 10M** |
|  | Illustrate physical integrity and logical integrity in detail. | **L3, CO3, 10M** |
|  | Compare and contrast digital certificate and digital signature. | **L2, CO3, 10M** |
|  | Write in detail about types of encryption with suitable examples | **L1, CO3, 10M** |
|  | Explain database integrity enforced? Determine various methods and techniques used. | **L2, CO3, 10M** |

**UIT - IV**

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| **UNIT-IV: Data Availability and Recovery**  High Availability, Measures to Improve Availability, Incident Response, Disaster Recovery. | | |
| **S. No.** | **Question** | **[BT Level] [CO][ Marks]** |
| **2 Marks Questions (Short)** | | |
|  | Define high availability. | **L1, CO4, 2M** |
|  | Mention two measures to improve data availability. | **L1, CO4, 2M** |
|  | What is meant by incident response? | **L1, CO4, 2M** |
|  | Define disaster recovery. | **L2, CO4, 2M** |
|  | List any two components of a disaster recovery plan. | **L1, CO4, 2M** |
|  | What is a Recovery Point Objective (RPO)? | **L1, CO4, 2M** |
|  | Mention any two challenges in achieving high availability. | **L1, CO4, 2M** |
|  | What is the role of backups in data recovery? | **L1, CO4, 2M** |
|  | Define Recovery Time Objective (RTO). | **L1, CO4, 2M** |
|  | Differentiate between RTO and RPO? | **L2, CO4, 2M** |
| **Descriptive Questions (Long)** | | |
|  | Explain the concept of high availability and the technologies used to achieve it. | **L2, CO4, 10M** |
|  | Discuss various measures to improve availability in a cybersecurity infrastructure. | **L2, CO4, 10M** |
|  | Describe the process of incident response and its key phases. | **L2, CO4, 5M** |
|  | Explain disaster recovery and the key steps involved in disaster recovery planning. | **L2, CO4, 10M** |
|  | Compare and contrast high availability vs. disaster recovery. | **L2, CO4, 10M** |
|  | Illustrate the importance of redundancy and failover systems in ensuring availability. | **L3, CO4, 10M** |
|  | Explain the impact of poor incident response planning with real-life examples. | **L2, CO4, 10M** |
|  | Write a detailed note on backup strategies and their role in recovery. | **L1, CO4, 10M** |
|  | Explain the difference between preventive, detective, and corrective recovery measures. | **L2, CO4, 10M** |
|  | Discuss how cloud-based disaster recovery solutions work and their advantages. | **L2, CO4, 10M** |

**UNIT - V**

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| **UNIT-V: Protecting a Cyber security Domain** Defending Systems and Devices, Server Hardening, Network Hardening, Physical and Environmental Security, Cyber security Domains, Ethics of Working in Cyber security. | | |
| **S. No.** | **Question** | **[BT Level] [CO][ Marks]** |
| **2 Marks Questions (Short)** | | |
|  | What is server hardening? | **L1, CO5, 2M** |
|  | Mention two techniques used in network hardening. | **L1, CO5, 2M** |
|  | Define cybersecurity domain. | **L1, CO6, 2M** |
|  | What is the purpose of physical security in cybersecurity? | **L1, CO6, 2M** |
|  | Mention any two tools used for defending systems. | **L1, CO5, 2M** |
|  | Explain environmental security. | **L2, CO6, 2M** |
|  | What is the importance of patch management? | **L1, CO6, 2M** |
|  | Mention one ethical principle in cybersecurity. | **L1, CO6, 2M** |
|  | What is meant by defense in depth? | **L1, CO5, 2M** |
|  | What is the need for physical access control? | **L1, CO6, 2M** |
| **Descriptive Questions (Long)** | | |
|  | Explain the concept of system and device defense in cybersecurity. | **L2, CO5, 10M** |
|  | Describe the techniques used in server hardening with examples. | **L2, CO5, 10M** |
|  | Discuss network hardening and various strategies to secure networks. | **L2, CO5, 10M** |
|  | Illustrate the role of physical and environmental security in a secure enterprise. | **L3, CO6, 10M** |
|  | Explain the various domains of cybersecurity and their interrelation. | **L2, CO6, 10M** |
|  | Describe best practices and ethical responsibilities of a cybersecurity professional. | **L2, CO6, 10M** |
|  | Discuss the layered approach to defense (defense in depth) and its significance. | **L2, CO5, 10M** |
|  | Write a detailed note on the security challenges in physical infrastructure. | **L1, CO6, 10M** |
|  | Explain how endpoint security contributes to overall cybersecurity protection. | **L2, CO6, 10M** |
|  | Analyze the ethical issues and professional responsibilities in handling sensitive data. | **L4, CO6, 10M** |

**Signature of the Staff: B. Poojitha**

**Signature of Department Academic Committee Member 1:**

**Signature of Department Academic Committee Member 2:**

**Signature of Department Academic Committee Member 3:**