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Security in Computing:

1. What is the CIA triad? How does it relate to security in computing?
2. What is the difference between symmetric and asymmetric encryption?
3. Can you explain the concept of a digital signature?
4. What is a firewall and how does it work?
5. What is a Denial of Service (DoS) attack? How can it be prevented or mitigated?

Answers:

1. The CIA triad refers to Confidentiality, Integrity, and Availability. It is a model used to guide policies and practices related to information security.
2. Symmetric encryption uses a single key to encrypt and decrypt data, while asymmetric encryption uses a pair of keys (a public key and a private key) to perform encryption and decryption.
3. A digital signature is a mathematical technique used to validate the authenticity and integrity of a message or document.
4. A firewall is a network security device that monitors and controls incoming and outgoing network traffic based on predetermined security rules.
5. A Denial of Service (DoS) attack is an attempt to prevent legitimate users from accessing a service or network by overwhelming it with traffic. It can be prevented or mitigated through techniques such as traffic filtering and rate limiting.

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Business Intelligence:

1. What is the difference between data, information, and knowledge?
2. What is data mining? How is it used in business intelligence?
3. Can you explain the concept of a data warehouse?
4. What is OLAP? How is it used to analyze data?
5. What is a decision support system (DSS)? Can you provide an example?

Answers:

1. Data refers to raw, unprocessed facts or figures. Information is data that has been processed and interpreted to be meaningful. Knowledge is the insight and understanding gained from information.
2. Data mining is the process of analyzing large amounts of data to discover patterns, relationships, and insights.
3. A data warehouse is a central repository of data from multiple sources that is used for reporting and analysis.
4. OLAP (Online Analytical Processing) is a technology used to analyze data from different perspectives and dimensions in real-time.
5. A decision support system (DSS) is a software system that helps users make better decisions by providing them with access to relevant data and tools for analysis.

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Principles of Geographic Information Systems:

1. What is GIS? What are some common applications of GIS?
2. What is the difference between raster and vector data?
3. Can you explain the concept of geocoding?
4. What is a map projection? How does it affect the representation of data on a map?
5. What is spatial analysis? Can you provide an example?

Answer:

1. GIS (Geographic Information Systems) is a technology used to capture, store, manipulate, analyze, and present spatial data.
2. Raster data represents data as a grid of cells, while vector data represents data using points, lines, and polygons.
3. Geocoding is the process of converting a street address or other location identifier into geographic coordinates.
4. A map projection is a way of representing a curved surface (such as the Earth) on a flat surface (such as a map). It affects the accuracy of spatial data.
5. Spatial analysis is a set of techniques used to analyze and model spatial data. Examples include spatial interpolation, buffer analysis, and network analysis.

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Enterprise Networking:

1. What is a network topology? Can you provide examples of different types of topologies?
2. What is the difference between a hub, a switch, and a router?
3. What is a VLAN? How is it used in enterprise networking?
4. What is Quality of Service (QoS)? How is it used to prioritize network traffic?
5. What is a virtual private network (VPN)? How does it provide secure remote access to a network?

Answer:

1. A network topology refers to the physical or logical layout of a network. Examples include star, bus, and mesh topologies.
2. A hub is a simple device that connects multiple devices in a network. A switch is a more advanced device that can direct traffic to specific devices. A router is a device that connects multiple networks together.
3. A VLAN (Virtual Local Area Network) is a logical group of devices that are grouped together based on some criteria, such as department or function.
4. Quality of Service (QoS) is a mechanism used to prioritize network traffic based on different criteria, such as bandwidth, latency, and packet loss.
5. A virtual private network (VPN) is a technology that allows users to securely connect to a private network over a public network such as the internet.

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IT Services Management:

1. What is ITIL? What are the key principles of ITIL?
2. Can you explain the concept of a service level agreement (SLA)?
3. What is a change management process? Why is it important in IT services management?
4. What is incident management? Can you provide an example?
5. What is problem management? How is it related to incident management?

Answer:

1. ITIL (Information Technology Infrastructure Library) is a framework used to manage IT services. It consists of a set of best practices and guidelines for IT service management.
2. A service level agreement (SLA) is a contract between a service provider and a customer that specifies the level of service that will be provided, including metrics such as uptime, response time, and resolution time.
3. Change management is the process of managing changes to IT systems and services in a structured and controlled manner to minimize the impact of changes on the business.
4. Incident management is the process of restoring normal service operation as quickly as possible in the event of an unplanned disruption to service. An example could be a server outage that causes a critical business application to stop working. The incident management process would involve identifying and diagnosing the issue, taking steps to resolve it, and communicating with stakeholders about the status of the incident.
5. Problem management is the process of identifying and addressing the root causes of incidents to prevent them from happening again. It is closely related to incident management because it aims to reduce the number and severity of incidents over time.

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Cyber Laws:

1. What is the difference between a civil and a criminal offense in the context of cybercrime?
2. Can you explain the concept of jurisdiction in cyberspace?
3. What is the difference between a copyright and a trademark?
4. What is the Computer Fraud and Abuse Act (CFAA)? What are some of its key provisions?
5. Can you provide an example of a case involving cyberbullying? How was it resolved?

Answers:

1. In the context of cybercrime, a civil offense is a legal dispute between two parties, while a criminal offense is a violation of criminal law that can result in punishment such as imprisonment or fines. An example of a civil offense could be a lawsuit between two companies over intellectual property infringement, while an example of a criminal offense could be a hacker stealing personal information and using it for financial gain.
2. Jurisdiction in cyberspace refers to the legal authority that a country or government has over activities that take place online. It can be complex because the internet is a global network that transcends physical borders. The jurisdiction of a country can depend on factors such as the location of the servers that host the data or the nationality of the individuals involved in the activity.
3. Copyright is a legal right that gives the owner the exclusive right to use and distribute creative works such as books, music, and movies. Trademark is a legal right that gives the owner the exclusive right to use a word, phrase, or symbol to identify their products or services. Copyright protects original works of authorship, while trademark protects brand identity.
4. The Computer Fraud and Abuse Act (CFAA) is a US federal law that criminalizes various types of computer-related offenses such as hacking, identity theft, and computer fraud. It also provides for

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civil remedies such as injunctions and damages for victims of computer-related crimes. Some key provisions include making it illegal to access a computer without authorization or to exceed authorized access, and criminalizing the theft or destruction of information on a computer.

5. An example of a case involving cyberbullying is the case of Megan Meier, a teenage girl who committed suicide after being harassed by a group of individuals on MySpace. The case was resolved with the conviction of Lori Drew, the mother of one of the individuals who participated in the harassment, on charges of conspiracy and unauthorized access to a computer. However, the verdict was later overturned on appeal. The case brought attention to the issue of cyberbullying and the need for laws to address it.

Remember this abbreviations and Full forms:

SIC:

ACL - Access Control List

AES - Advanced Encryption Standard

CSRF - Cross-Site Request Forgery

DDoS - Distributed Denial of Service

DMZ - Demilitarized Zone

DNS - Domain Name System

HMAC - Hash-based Message Authentication Code

HTTP - Hypertext Transfer Protocol

HTTPS - Hypertext Transfer Protocol Secure

IDS - Intrusion Detection System

IPS - Intrusion Prevention System

IPsec - Internet Protocol Security

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LAN - Local Area Network

LDAP - Lightweight Directory Access Protocol

NAT - Network Address Translation

SSL - Secure Sockets Layer

TCP - Transmission Control Protocol

VPN - Virtual Private Network

WAF - Web Application Firewall

XSS - Cross-Site Scripting

ACL stands for Access Control List and is a set of permissions attached to an object in computing.

AES stands for Advanced Encryption Standard and is a symmetric encryption algorithm used for securing data.

CSRF stands for Cross-Site Request Forgery and is a type of attack where an attacker can execute unwanted actions on behalf of a victim.

DDoS stands for Distributed Denial of Service and is a type of attack where multiple compromised systems are used to flood a target website with traffic.

DMZ stands for Demilitarized Zone and is a network architecture that separates an internal network from an untrusted network like the internet.

DNS stands for Domain Name System and is a protocol that translates domain names into IP addresses.

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HMAC stands for Hash-based Message Authentication Code and is a message authentication code that uses a cryptographic hash function and a secret key.

HTTP stands for Hypertext Transfer Protocol and is the protocol used for transferring data over the World Wide Web.

HTTPS stands for Hypertext Transfer Protocol Secure and is a secure version of HTTP that uses encryption to protect data.

IDS stands for Intrusion Detection System and is a system that monitors network traffic for suspicious activity and alerts administrators when potential threats are detected.

IPS stands for Intrusion Prevention System and is a system that goes beyond detection to actively block potential threats from entering a network.

IPsec stands for Internet Protocol Security and is a protocol suite for securing internet protocol communications by authenticating and encrypting each IP packet.

LAN stands for Local Area Network and is a network that connects computers

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BI:

BI - Business Intelligence

CPM - Corporate Performance Management

CRM - Customer Relationship Management

DSS - Decision Support System

EIS - Executive Information System

ERP - Enterprise Resource Planning

OLAP - Online Analytical Processing

OLTP - Online Transaction Processing

KPI - Key Performance Indicator

ROI - Return on Investment

SQL - Structured Query Language

DWH - Data Warehouse

ETL - Extract, Transform, Load

Data Mart - A subset of a data warehouse that is designed to serve a specific business function or department.

Data Mining - The process of analyzing large data sets to discover patterns and insights.

Data Visualization - The graphical representation of data to help users understand and analyze data more easily.

BI Tools - Software applications used to analyze and visualize data, such as Tableau, Power BI, and QlikView.

Big Data - Extremely large data sets that can be analyzed to reveal patterns and trends, often using specialized software tools and techniques.

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Predictive Analytics - The use of statistical and machine learning algorithms to analyze historical data and make predictions about future events or trends.

Dimension - A category or attribute that can be used to slice and dice data, such as time, geography, or product.

BI stands for Business Intelligence and refers to the process of collecting, analyzing, and presenting data to help organizations make more informed business decisions.

CPM stands for Corporate Performance Management and is a set of processes and methodologies used to manage an organization's performance against its strategic objectives.

CRM stands for Customer Relationship Management and refers to the software tools and strategies used to manage and analyze customer interactions and data.

DSS stands for Decision Support System and is a software system that helps users make better decisions by providing access to relevant data and analysis tools.

EIS stands for Executive Information System and is a specialized type of DSS designed to provide executives with high-level views of business performance and trends.

ERP stands for Enterprise Resource Planning and refers to the software systems used to manage an organization's core business processes, such as accounting, inventory, and production.

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OLAP stands for Online Analytical Processing and refers to the technology used to analyze data in multidimensional databases.

OLTP stands for Online Transaction Processing and refers to the technology used to process high volumes of real-time transactions, such as those used in e-commerce or banking.

KPI stands for Key Performance Indicator and is a metric used to measure and evaluate the success of an organization or specific business process.

ROI stands for Return on Investment and is a measure of the profitability of an investment, typically expressed as a percentage of the initial investment.

SQL stands for Structured Query Language and is the primary language used to manage and manipulate data in relational databases.

DWH stands for Data Warehouse and is a centralized repository of data used for analysis and reporting.

ETL stands for Extract, Transform, Load and refers to the process of extracting data from various sources, transforming it into a standardized format, and loading it into a data warehouse or other system.

Data Mining refers to the process of analyzing large data sets to discover patterns and insights.

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Data Visualization refers to the graphical representation of data to help users understand and analyze data more easily.

BI Tools are software applications used to analyze and visualize data, such as Tableau, Power BI, and QlikView.

Big Data refers to extremely large data sets that can be analyzed to reveal patterns and trends, often using specialized software tools and techniques.

Predictive Analytics refers to the use of statistical and machine learning algorithms to analyze historical data and make predictions about future events



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PGIS:

GIS - Geographic Information Systems

GPS - Global Positioning System

DEM - Digital Elevation Model

DSM - Digital Surface Model

LIDAR - Light Detection and Ranging

UAV - Unmanned Aerial Vehicle

WMS - Web Map Service

WFS - Web Feature Service

CRS - Coordinate Reference System

Raster - A data structure that represents spatial data as a grid of cells or pixels.

Vector - A data structure that represents spatial data as a series of points, lines, and polygons.

Shapefile - A common file format used to store vector data in GIS software.

Geodatabase - A database designed specifically for storing spatial data in GIS software.

Remote Sensing - The process of collecting data about the earth's surface using sensors that are not in direct contact with the surface, such as satellites or airplanes.

Spatial Analysis - The process of analyzing and interpreting spatial data to uncover patterns and relationships.

Buffer - A zone around a geographic feature, typically measured in distance units, used to represent areas of influence or proximity.

Overlay - The process of combining two or more layers of spatial data to create a new layer that incorporates attributes from both layers.

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Geocoding - The process of assigning geographic coordinates to a data point based on its address or other location information.

Attribute - A characteristic or property of a geographic feature, such as population, elevation, or land use.

Metadata - Information about the content, quality, and other characteristics of spatial data, such as the date of creation, data format, and data source.

GIS stands for Geographic Information Systems and refers to the software and hardware systems used to collect, store, analyze, and visualize spatial data.

GPS stands for Global Positioning System and is a satellite-based navigation system that provides location and time information anywhere on or near the earth's surface.

DEM stands for Digital Elevation Model and is a digital representation of the earth's surface topography, typically in the form of a raster grid.

DSM stands for Digital Surface Model and is a digital representation of the earth's surface, including buildings, vegetation, and other features, typically in the form of a raster grid.

LIDAR stands for Light Detection and Ranging and is a remote sensing technology that uses laser beams to measure distance and create detailed 3D models of the earth's surface.

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UAV stands for Unmanned Aerial Vehicle and refers to drones or other aircraft that are operated remotely without a human pilot on board.

WMS stands for Web Map Service and is a standard protocol used for serving and accessing online maps.

WFS stands for Web Feature Service and is a standard protocol used for serving and accessing online spatial data.

CRS stands for Coordinate Reference System and is a system used to define the geographic coordinates of a location, such as latitude and longitude.

Raster is a data structure that represents spatial data as a grid of cells or pixels.

Vector is a data structure that represents spatial data as a series of points, lines, and polygons.

Shapefile is a common file format used to store vector data in GIS software.

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Remote Sensing is the process of collecting data about the earth's surface using sensors that are not in direct contact with the surface, such as satellites or airplanes.

Spatial Analysis is the process of analyzing and interpreting spatial data to uncover patterns and relationships.

Buffer is a zone around a geographic feature, typically measured in distance units, used to represent areas of influence or proximity

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EN:

LAN - Local Area Network

WAN - Wide Area Network

WLAN - Wireless Local Area Network

VPN - Virtual Private Network

NAT - Network Address Translation

DHCP - Dynamic Host Configuration Protocol

DNS - Domain Name System

FTP - File Transfer Protocol

SMTP - Simple Mail Transfer Protocol

HTTP - Hypertext Transfer Protocol

HTTPS - Hypertext Transfer Protocol Secure

TCP - Transmission Control Protocol

UDP - User Datagram Protocol

OSI - Open Systems Interconnection

SNMP - Simple Network Management Protocol

VLAN - Virtual LAN

MPLS - Multiprotocol Label Switching

BGP - Border Gateway Protocol

OSPF - Open Shortest Path First

IS-IS - Intermediate System to Intermediate System

LAN stands for Local Area Network and refers to a network that is confined to a relatively small area, such as a single building or campus.

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WAN stands for Wide Area Network and refers to a network that spans a large geographic area, such as a city, country, or even the world.

WLAN stands for Wireless Local Area Network and refers to a LAN that uses wireless technology, such as Wi-Fi, to connect devices.

VPN stands for Virtual Private Network and is a secure, encrypted connection between two or more devices over a public network, such as the internet.

NAT stands for Network Address Translation and is a technique used to map one IP address space into another by modifying network address information in the IP header of packets while they are in transit across a traffic routing device.

DHCP stands for Dynamic Host Configuration Protocol and is a network protocol used to automatically assign IP addresses and other network configuration parameters to devices on a network.

DNS stands for Domain Name System and is a system used to translate domain names, such as www.example.com, into IP addresses that computers can understand.

FTP stands for File Transfer Protocol and is a standard protocol used to transfer files over a network.

SMTP stands for Simple Mail Transfer Protocol and is a standard protocol used to send email messages over a network.

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HTTP stands for Hypertext Transfer Protocol and is a standard protocol used for transferring data over the World Wide Web.

HTTPS stands for Hypertext Transfer Protocol Secure and is a secure version of HTTP that uses encryption to protect data.

TCP stands for Transmission Control Protocol and is a reliable, connection-oriented protocol used to transmit data over a network.

UDP stands for User Datagram Protocol and is an unreliable, connectionless protocol used to transmit data over a network.

OSI stands for Open Systems Interconnection and is a reference model for how applications communicate over a network.

SNMP stands for Simple Network Management Protocol and is a protocol used for managing and monitoring network devices.

VLAN stands for Virtual LAN and is a logical grouping of devices on a network that are not physically connected to the same network switch.

MPLS stands for Multiprotocol Label Switching and is a protocol used to route data between different networks.

BGP stands for Border Gateway Protocol and is a protocol used to exchange routing information between different networks.

OSPF stands for Open Shortest Path First and is a protocol used for routing data within a single network.

IS-IS stands for Intermediate System to Intermediate System and is a protocol used for routing data within a single network.

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ITSM:

ITSM - IT Service Management

ITIL - Information Technology Infrastructure Library

SLA - Service Level Agreement

KPI - Key Performance Indicator

CMDB - Configuration Management Database

CAB - Change Advisory Board

RACI - Responsible, Accountable, Consulted, Informed

CSI - Continual Service Improvement

SLM - Service Level Management

OLA - Operational Level Agreement

PIR - Post Implementation Review

SACM - Service Asset and Configuration Management

ITAM - IT Asset Management

FMEA - Failure Mode and Effects Analysis

RCA - Root Cause Analysis

COBIT - Control Objectives for Information and Related Technology

ISO - International Organization for Standardization

PDSA - Plan-Do-Study-Act

SIAM - Service Integration and Management

ITFM - IT Financial Management

ITSM stands for IT Service Management and refers to the process of designing, delivering, managing, and improving the IT services provided to an organization's customers.

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ITIL stands for Information Technology Infrastructure Library and is a framework of best practices for ITSM.

SLA stands for Service Level Agreement and is a contract between an IT service provider and a customer that outlines the services to be provided, the expected level of service, and any penalties for failing to meet the agreed-upon service levels.

KPI stands for Key Performance Indicator and is a metric used to measure the success of an IT service or process.

CMDB stands for Configuration Management Database and is a database that contains information about the configuration items (CIs) in an IT infrastructure.

CAB stands for Change Advisory Board and is a group responsible for reviewing and approving changes to an IT service or infrastructure.

RACI stands for Responsible, Accountable, Consulted, Informed and is a matrix used to clarify roles and responsibilities in an IT organization.

CSI stands for Continual Service Improvement and is a process for identifying and implementing improvements to IT services and processes.

SLM stands for Service Level Management and is the process of setting, monitoring, and improving service levels for IT services.

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OLA stands for Operational Level Agreement and is a contract between IT teams that outlines the services to be provided and the expected level of service.

PIR stands for Post Implementation Review and is a process for evaluating the success of a project or change after it has been implemented.

SACM stands for Service Asset and Configuration Management and is a process for managing the configuration items (CIs) in an IT infrastructure.

ITAM stands for IT Asset Management and is the process of managing the lifecycle of IT assets, including procurement, deployment, maintenance, and disposal.

FMEA stands for Failure Mode and Effects Analysis and is a method for identifying and addressing potential failures in a system or process.

RCA stands for Root Cause Analysis and is a method for identifying the underlying cause of a problem or incident.

COBIT stands for Control Objectives for Information and Related Technology and is a framework of best practices for IT governance and management.

ISO stands for International Organization for Standardization and is a non-governmental organization that develops and publishes standards for various industries, including IT.

PDSA stands for Plan-Do-Study-Act and is a method for testing and implementing improvements to IT services and processes.

SIAM stands for Service Integration and Management and is a framework for managing multiple IT service providers.

ITFM stands for IT Financial Management and is the process of managing the financial aspects of IT services, including budgeting, cost management, and chargeback.

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CL:

IT Act: Information Technology Act

IPC: Indian Penal Code

E-Governance: Electronic Governance

IPR: Intellectual Property Rights

CFAA: Computer Fraud and Abuse Act

GDPR: General Data Protection Regulation

PII: Personally Identifiable Information

SSL: Secure Sockets Layer

DMCA: Digital Millennium Copyright Act

COPPA: Children's Online Privacy Protection Act

TOR: The Onion Router

VPN: Virtual Private Network

DDoS: Distributed Denial of Service

DoS: Denial of Service

IP: Internet Protocol

DNS: Domain Name System

URL: Uniform Resource Locator

HTTP: Hypertext Transfer Protocol

FTP: File Transfer Protocol

TCP/IP: Transmission Control Protocol/Internet Protocol

It's important to note that this list is not exhaustive, and there may be additional short forms and full forms related to Cyber Laws that could be relevant to the course.