Programme Name & Branch: B.Tech & Computer Science and Engineering

Course Name & Code: BCSE354E & Information Security Management

Class Number (s):

Faculty Name (s):

Exam Duration: 90 Min.   **Maximum Marks: 50**

General instruction(s):

Specify if any printed material may be permitted

Any other specific instruction

Q. No.	Question	Max Marks

1.	Outdated software is one of the most frequent security flaws in widely used Content Management Systems (CMS). This covers any third-party components you employ on your website, as well as the main content management system software, plugins, extensions, and themes. Hackers may use bugs, mistakes, and security holes in outdated software to access your website, steal your data, or insert dangerous code. How users can do to protect themselves from CMS vulnerabilities? And also explain why CMS platform is so vulnerable?
	
	Solution: To protect themselves from CMS vulnerabilities:
	
	-create a regular schedule to update or patch their CMS or patch their CMS
	
	-Regularly backup the CMS
	-Subscribe to a regularly-updated list of vulnerabilities for the specific CMS being used
	-Delete default admin usernames
	-Use a plugin for strong authentication, or two-factor authentication (2FA)
	
	-Once CMS vulnerabilities are identified, these flaws can turn into a virtual gold mine for hackers, creating a much more efficient way for them to execute automated mass-scale attacks.
	  -website operators who use weak passwords, leaving their admin accounts vulnerable to automated brute force attacks.
	  -weak passwords were used to inject the website with malware, turning them into DDoS zombies.
	-with administrative access hackers can also deal other kinds of damage.
		10

2.	Traffic filtering device is used to keep track of all incoming and outgoing traffic and decides whether to accept, reject, or discard it depending on predetermined security rules. Distinguish how stateless and stateful traffic filtering devices can able to filter the packets and also discuss its pros and cons. <table><tr><td>**Stateless traffic filtering devices**</td><td>**stateful traffic filtering devices**</td></tr><tr><td>A filtering decision is made based on the following information: Source IP address; Destination IP address; Protocol; Source port number; Destination</td><td>The state-table contains the following information: Source IP address; Destination IP address; Source port number; Destination port</td></tr></table>	10

	port number. **Pros:** Simple implementation; Supported by most routers, so there is no need to invest in new equipment and software; Rarely cause bottlenecks in the area of their application, even at high speeds in gigabit networks. **Cons:** Vulnerability to IP spoofing attacks; Vulnerability to attacks that exploit problems within the TCP/IP specification and the protocol stack; Problems with filtering packets that are fragmented. No support for the dynamic filtering of some services	number; TCP sequence numbers; TCP flag values. **Pros:** A higher level of protection compared to stateless firewall devices (greater efficiency and moredetailed traffic Detection of IP spoofing and dos attacks; More log information compared to packet filters. **Cons:** No protection against application layer attacks; Performance degradation of the router on which they are deployed router); Not all of them provide support for UDP, GRE and IPSEC protocols, treating them in the same way as stateless firewall devices; No support for user authentication.	
3.	Social interaction is fundamental thing in human nature. Developing relationships at work can provide you with motivation, self-determination, and peace of mind. Your colleagues will be more confident and motivated if they feel comfortable with you and each other. It takes more than just being best friends with your coworkers or colleagues to build relationships at work. Discuss the importance of building healthy working relationships with colleagues and how will it affect your work if you are not maintain healthy working relationships with colleagues? Explain it with an example. Solution: Be clear about what you want to say before communicating. Modify your message Be careful about the language, tone and content of the message. Take cues from the non-verbal messages message being sent out should be consistent Listen to the other person's point of view during a communication. Follow-up after the communication Choose the medium of communication		10
4.	Consider that you are a CEO of an organization. One day you were received the following mail from your employee which makes you angry. Suddenly you were realized that you need to provide proper training to your employees about Email Etiquettes. Subject: Urgent!!!! Hey CEO ! Sorry to bother you, but I need help from you IMMEDIATELY!!! PLEASE GET BACK TO ME ASAP! Thanks in advance!! Discuss the Email Etiquettes that one needs to take care while communicating through emails or other digital messaging options in an organization. Solution: Include a subject line that is crisp and clear and matches the content		10

	Use your official email address	
	Avoid using "reply all"	
	Use professional salutations.	
	Avoid emoticons as far as possible and use exclamation points sparingly.	
	Make your message easy to read.	
	Keep it short and get to the point.	
	Do not sound abrupt or harsh.	
	It's better to leave humour out of emails	
	Reply to your emails	
	Proofread every message	
5.	Sarah joined the company two years ago and quickly gained recognition for her exceptional coding skills. However, Mark, a senior developer with a superiority complex, became increasingly envious of Sarah's success. Over time, Mark's behavior escalated from subtle undermining to outright bullying. Mark intentionally excludes Sarah from important project discussions, team events, and social gatherings. Mark engages in spreading false rumors about Sarah, suggesting that she is not a team player. Mark extends his bullying behavior to online platforms. Sarah, feeling increasingly distressed, decides to report the harassment to the HR department. However, Mark discovers that she has taken this step and retaliates by intensifying the bullying. He undermines her credibility, suggesting to colleagues that she is overly sensitive and making false accusations. In this scenario, Mark's bullying and harassment have created a toxic workplace for Sarah, affecting her professional and personal life. How this toxic workplace leads to business failure if Sarah is really working for an organization? Illustrate and explain with flow chart.	10