K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

May-June : 2025-2026
(B. Tech.) Program: Computer Engineering Scheme: IIB
Regular: TY Semester: VI
Course Code: CEDLC6033 and Course Name: Infrastructure security
Date of Exam: 22/5/2026 Duration: 02.5 Hours Max. Marks: 60

Instructions:
(1)All questions are compulsory.
(2)Draw neat diagrams wherever applicable.
(3)Assume suitable data, if necessary.

Q. No.	Question	Max. Marks	CO	BT level
Q 1	Solve any **two** questions out of three: (05 marks each)	10		
a)	Apply RSA encryption technique for secure communication and explain the role of public key and private key in the encryption and decryption process.		CO2	Ap
b)	Analyze the impact of DoS and DDoS attacks on network infrastructure. Suggest suitable preventive measures using Firewall and IDS/IPS technologies.		CO4	Ap
c)	Explain the following concepts with suitable examples: i) Cyber Vulnerability ii) Security Goals iii) Authentication using Biometrics iv) RBAC Model v) Defense in Depth		CO1	U
Q 2	Solve any **two** questions out of three: (05 marks each)	10		
a)	Explain the following Information Security Management concepts: i) Security Policies ii) Incident Response iii) Risk Management iv) Business Continuity Plan v) Cybercrime Laws		CO6	U
b)	Explain the concepts of Confidentiality, Integrity and Availability (CIA Triad) with suitable examples.		CO1	U

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c)	A company's web portal is affected by Cross-Site Request Forgery (CSRF) and Session Hijacking attacks. Explain how these attacks occur and recommend suitable browser-side and server-side defense mechanisms.		CO5	Ap
Q.3	Solve any **two** questions out of three. (10 marks each)	20		
a)	Apply Diffie–Hellman Key Exchange algorithm for establishing secure communication between two users. Compare Diffie–Hellman with symmetric encryption techniques in terms of key distribution and security.		CO2	Ap
b)	Explain the following concepts related to Software, Operating System and Database Security: i) Format String Vulnerability ii) Virus iii) Windows Hardening iv) Database Integrity v) Multilevel Security		CO3	U
c)	Apply suitable web security mechanisms for protecting modern web applications. Discuss the role of the following: i) HTTPS ii) Secure Cookies iii) OAuth iv) Email Security v) OWASP Top 10 Security Risks |		CO5	Ap
Q.4	Solve any **two** questions out of three. (10 marks each)	20		
a)	Analyze TCP/IP security weaknesses and explain how ARP Spoofing and Port Scanning attacks affect network communication. Also discuss the role of VPN and IPsec in securing network traffic		CO4	An
b)	A healthcare organization stores sensitive patient records on a centralized information system accessed by doctors, nurses and administrative staff. The organization wants to prevent unauthorized access and ensure data confidentiality and integrity.Apply suitable authentication and access control mechanisms for securing the		CO1	Ap

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	system. Explain the role of Passwords, Biometrics, RBAC and Security Goals in protecting sensitive patient information.			
c)	Explain the following concepts related to System and Network Security: i) Packet Sniffing ii) Worm iii) File Protection iv) Rootkit v) Wireless Intrusion Detection System (WIDS)		CO3	U

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