

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

Nov-Dec 2025 ~~Jan-Feb 2026~~  
 B. Tech Program: EXTC/COMPTER/IT/AIDS (Honors) Scheme III  
~~Regular~~ Examination: TY Semester: V  
 Course Code: HCSC501 Course Name: Ethical hacking  
 Date of Exam: 5/12/25 Duration: 02.5 Hours Max. Marks: 60

Supplementary

Jan-Feb 2026 9/2/2026

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 <b>two</b> questions out of three: (05 marks each)	10		
a)	Discuss common protocol vulnerabilities in computer networks. Explain how attackers exploit these vulnerabilities.		1	4
b)	What is OWASP? List any four OWASP Top 10 vulnerabilities		4	2
c)	What is steganography? Explain any method of steganography and differentiate it from cryptography.		2	2
Q 2	Solve any <b>two</b> questions out of three: (05 marks each)	10		
a)	Describe password-cracking techniques with reference to tools such as John the Ripper.		3	2
b)	Explain the concept of Physical Unclonable Functions (PUFs). Why are PUFs considered secure for hardware authentication?		5	1,2
c)	Explain SQL Injection. How can developers prevent SQL injection attacks?		4	2,5
Q.3	Solve any <b>two</b> questions out of three. (10 marks each)	20		
a)	Discuss lightweight cryptographic algorithms. Why are they important for IoT? Explain any one lightweight cipher in detail.		2	2
b)	1) Explain any two information-gathering techniques used during the reconnaissance phase of ethical hacking.(5M) 2) What is vulnerability assessment? Explain the steps involved, and differentiate it from penetration testing.(5M)		3	2,5
c)	Explain any one real-world cyberattack case study and describe the key vulnerability that was exploited.(10M)		6	2

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Q.4	Solve any <b>two</b> questions out of three. (10 marks each)	20		
a)	1) Explain private-key and public-key encryption with suitable examples. Compare both techniques in terms of security and application.		2	2
b)	1) Write a short note on Backdoors and Trapdoors. How do they pose security risks in hardware systems? [5] 2) What are Side Channel Attacks? Explain any two types such as timing attack or power analysis attack [5]		5	6
c)	Explain any one real-world cyberattack case study and describe the key vulnerability that was exploited.		6	2

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