



PRACTICE SET
End Semester Examination, May 2026

Program: LLM

Semester: II

Subject: Cyber Crime & Forensic Science

Subject Code: 24H.211

Course Outcome:

On the completion of the Course, the students will be able to:

Course Outcomes	Description
CO1	Analyze and evaluate the cyber security needs of an organization.
CO2	Measure the performance and troubleshoot cyber security systems.
CO3	Examine the role and functions of Forensic Science in solving cyber-crimes
CO4	Comprehend the relationship between DNA and Evidence

UNIT I

Section A (10 marks)

1. Critically analyze the scope, strengths, and limitations of the Information Technology Act, 2000 in addressing emerging cyber threats. Suggest amendment in light of modern technological developments such as artificial intelligence. (CO1) (Analyze) (HOT)
2. Discuss the concept of Mens Rea and Actus Reus and how it is applicable in terms of Cybercrime. (CO1) (Understand) (LOT)
3. Examine the evolution of malware, including viruses and modern variants. Analyze the legal and technical challenges in preventing and prosecuting large-scale virus attacks. (CO1) (Analyze) (HOT)
4. Discuss the role of Intellectual Property Rights (IPR) in the digital era. Critically evaluate the challenges posed by software piracy to Intellectual Property Rights (IPR). (CO2) (Evaluate) (HOT)

5. Analyze social engineering as a non-technical cyber threat. Evaluate its psychological foundations and discuss why traditional cybersecurity measures often fail against such attacks. (CO3) (Analyze) (HOT)
6. Explain the methodology of cybercrime investigation with emphasis on digital forensics and also discuss issues related to admissibility, integrity, and chain of custody of digital evidence. (CO3) (Understand) (LOT)
7. Evaluate the concept of cyber security in the context of national security and global cyber governance. Discuss the need for international cooperation in combating cybercrimes.? (CO2) (Evaluate) (HOT)
8. Outline the standard procedure for a Cyber Crime Investigation. What are the critical challenges faced by law enforcement agencies regarding digital evidence and jurisdictional boundaries? (CO2) (Evaluate) (HOT)
9. Critically examine the salient features of the Information Technology Act, 2000. How did the 2008 Amendment strengthen the legal framework for cybercrimes and data protection?(CO2) (Evaluate) (HOT)
10. Critically analyze the intersection of Intellectual Property Rights (IPR) and Information Technology. How are copyrights and patents protected in the digital ecosystem, and what are the penalties for infringement? (CO3) (Analyze) (HOT)

Section B (20 marks)

11. TechNova Solutions, a software firm specializing in patented AI-driven security, recently suffered a catastrophic security breach starting when an employee, Rahul, fell victim to a sophisticated Social Engineering attack by clicking a phishing link that mimicked the company's HR portal. This allowed an external adversary, 'X', to gain unauthorized access to the internal network. Once inside, 'X' utilized Hacking techniques to bypass administrative controls and Cracking tools to circumvent the license-key protections of the company's flagship software. After gaining entry, 'X' stole the patented source code and published it on an underground forum, facilitating widespread Software Piracy. To further damage the firm, 'X' deployed a Virus Attack in the form of a logic bomb that encrypted the company's primary servers before scrubbing the system logs to hinder a Cyber Crime Investigation. It was later discovered that 'X' is a disgruntled former employee operating from a foreign jurisdiction.

In light of this scenario, analyze the legal implications under the Legal System of Information Technology, identify the specific violations of Intellectual Property rights, and

evaluate the Cyber Security failures that allowed the human element of the attack to succeed. (CO4) (Apply) (HOT)

12. Explain the relationship between cyber security and cyber laws. How do they complement each other in maintaining a safe digital environment? (CO2) (Understand) (LOT)
13. Critically analyze the legal and technical challenges of the digital age by evaluating how Hacking, Cracking, and Social Engineering converge to facilitate Software Piracy and the theft of Intellectual Property. Discuss the adequacy of the Legal System of Information Technology in regulating Virus Attacks and Online Pornography, while addressing the inherent difficulties in Cyber Crime Investigation, such as jurisdictional barriers and the preservation of digital evidence. (CO3) (Analyze) (HOT)

UNIT II

Section A (10 marks)

14. Define Cyber Forensics and explain its fundamental principles. Discuss the various phases involved in a standard cybercrime investigation process, from identification to presentation in a court of law. (CO3) (Remember) (LOT)
15. Outline the legal protocols for the Search and Seizure of Computers and electronic storage media. What precautions must an investigator take to avoid data alteration or physical damage during the seizure process? (CO1) (Understand) (LOT)
16. Analyze the role of Encryption and Decryption in cyber forensics. Discuss how cryptographic methods can act as both a tool for security and a hurdle for investigators, and mention common techniques used to bypass encryption during a forensic audit.? (CO3) (Analyze) (HOT)
17. Discuss the various Password Cracking techniques used in forensic investigations, such as Brute Force, Dictionary Attacks, and Rainbow Tables. Under what legal circumstances is an investigator justified in using these methods to access protected digital evidence? (CO2) (Evaluate) (HOT)
18. Explain how tools are used for recovering deleted data, password cracking, encryption, and decryption, with suitable examples. (CO3) (Remember) (LOT)
19. Explain its scope and importance in modern cybercrime investigations. How does it differ from traditional forensic science? (CO2) (Understand) (LOT)
20. Explain the technical mechanism of how data is stored on a hard drive and why "deleted" files are often recoverable. Discuss the methodologies and tools used by forensic experts

for Recovering Deleted Evidences from formatted or corrupted partitions. (CO4) (Understand) (LOT)

21. Write about Forensics Investigations and explain about Forensics Investigation in India. (CO1) (Remember) (LOT)

Section B (20 marks)

22. "The Supreme Court's verdict in *Justice K.S. Puttaswamy vs. Union of India (2017)* marked a paradigm shift in the Indian legal landscape regarding digital privacy. Critically examine the implications of this judgment on the evolution of cyber laws in India, specifically focusing on data protection, state surveillance, and the constitutional validity of the 'Right to be Forgotten'. (CO1) (Analyze) (HOT)
23. Explain the methods of identification, collection, preservation, and examination of digital evidence, including the role of eDiscovery, forensic tools, e-mail tracking, IP tracking, and techniques like encryption/decryption and data recovery, along with legal aspects of search and seizure of computers.(CO4) (Apply) (HOT)

UNIT III

Section A (10 marks)

24. Distinguish between the roles of the Chemistry Division and the Toxicology Division. How does a forensic chemist analyze unknown substances found at a crime scene, and what procedures are followed by a toxicologist to detect poisons or drugs in biological samples? (CO3) (Remember) (LOT)
25. Discuss the application of Physics and Ballistics in solving crimes involving firearms. (CO2) (Understand) (LOT)
26. "The Supreme Court's ruling in *Selvi vs. State of Karnataka (2010)* redefined the boundaries of investigative techniques in the light of constitutional safeguards. Critically analyze the court's stance on the involuntary administration of Polygraph (Lie Detector), Narco-Analysis tests. Discuss how this judgment balances the 'Right against Self-Incrimination' with the state's need for effective criminal investigation.". (CO4) (Remember) (LOT)
27. Describe the principles behind the Polygraph Division. Explain the physiological parameters monitored during a "lie detector" test and discuss the legal admissibility and ethical considerations of using polygraph results in a court of law. (CO3) (Remember) (LOT)

28. Explain the significance of the Biology and Serology Division in criminal investigations. (CO2) (Understand) (LOT)
29. Write a detailed note on the Documents Division. Explain how forensic experts detect forgery, alteration, and counterfeit documents.? (CO3) (Understand) (LOT)
30. Analyze the case law of ABC Vs Union of India (2019) in reference to right to be forgotten as part of right to privacy under Article 21 of Constitution of India, 1950. (CO2) (Analyze) (HOT)

Section B (20 marks)

31. The judgment in *Shreya Singhal vs. Union of India (2015)* is described as a 'watershed moment' for freedom of expression in the digital age. Critically examine the grounds on which the Supreme Court struck down Section 66A of the IT Act, 2000, and discuss the significance of the 'Chilling Effect' doctrine and the 'Reading Down' of Section 79 in this context. (CO3) (Understand) (LOT)
32. Analyze the responsibilities of the Documents Division. What techniques are used by experts to detect forgeries, analyze handwriting variations, and identify alterations in legal or financial documents? (CO2) (Analyze) (HOT)
33. Explain the significance of scientific divisions in forensic investigations. Discuss how different divisions such as Toxicology, Ballistics, and Documents contribute to the detection and proof of crimes. (CO4) (Understand) (HOT)

UNIT IV

Section A (10 marks)

34. Provide a comprehensive overview of the main features of the *Bhartiya Sakshya Adhinyam*. Specifically, highlight how the new law expands the definition of "Document" to include electronic and digital records. (CO1) (Remember) (LOT)
35. Analyze the admissibility of DNA evidence within the Indian legal system. Discuss how courts balance the "Conclusive Proof" of biological evidence with the fundamental right to privacy and the privilege against self-incrimination. (CO3) (Analyze) (HOT)
36. Explain the provisions regarding secondary evidence and electronic records under the *Bhartiya Sakshya Adhinyam*. How does the BSA simplify the process of proving digital or DNA-related forensic reports compared to the older Section 65B of the IEA? (CO4) (Understand) (LOT)

37. Evaluate how did the Indian Evidence Act, 1872 handle DNA technology despite being drafted in the pre-DNA era? Discuss the role of Section 45 (Expert Opinion) and Section 112 (Legitimacy of Children) in the context of DNA testing. (CO3) (Evaluate) (HOT)
38. Critically evaluate the role of the Indian Judiciary in shaping the use of DNA Profiling. Mention landmark judgments that established guidelines for when a court can order a DNA test and the weightage given to such forensic findings in criminal trials. (CO1) (Evaluate) (HOT)
39. Identify the potential challenges in implementing the Bhartiya Sakshya Adhinyam concerning forensic technologies like DNA. Discuss issues related to the "Chain of Custody," the need for standardized lab protocols, and the training of legal professionals to handle complex biological evidence. (CO4) (Understand) (LOT)
40. Discuss the significant shifts from the Indian Evidence Act (IEA), 1872 to the Bhartiya Sakshya Adhinyam (BSA), 2023. What were the primary motivations behind this legislative overhaul, and how does it aim to modernize the Indian judicial process? (CO1) (Understand) (LOT)

Section B (20 marks)

41. Critically evaluate the requirements for the admissibility of expert opinions and forensic reports. How does the BSA ensure that advanced technology like DNA profiling does not infringe upon constitutional protections, such as the right against self-incrimination? (CO4) (Evaluate) (HOT)
42. Examine the historical application of DNA Technology under the Indian Evidence Act, 1872, specifically through Section 45 (Expert Opinion) and Section 112. Compare this with the current standing of forensic biological evidence under the Bhartiya Sakshya Adhinyam. (CO2) (Analyze) (HOT)

Summary Sheet

CO Wise

CO	Q. No	Mark s
CO1	1,2,3,15,21,34,38,39,40	100
CO2	4,7,8,9,12,17,19,24,25,28,32,42	140
CO3	5,6,10,13,14,16,18,27,29,30,31,35,37	160
CO4	11,20,23,26,33,36,39,41	100
Total		500

Unit Wise

Unit	Q. No	Marks
Unit 1	1,2,3,4,5,6,7,8,9,10,11	140
Unit 2	12,13,14,15,16,17,18,19,20,21	120
Unit 3	22,23,24,25,26,27,28,29,30,31	130
Unit 4	32,33,34,35,36,37,38,39,40	110
Total		500

Blooms Taxonomy Level (BTL) Wise

BTL	Q. No	Marks
LOT	2,6,12, 14,15,18,19,20,21,24,25,26,27,28,29,31,34,36,39,40	180
HOT	1,3,4,5,7,8,9,10,11,13,16,17,22,23,30,32,33,35,37,38,41, 42	320
Total		500

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Disclaimer: -This is a Practice set. The Question in End term examination will differ from the Practice set. This Practice set is meant for practice only.