R3682	Sub. Code 556301

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2025

Third Semester

Cyber Forensics

ETHICAL HACKING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. What is the primary role of an ethical hacker? (CO1, K1)

   (a) To damage systems intentionally

   (b) To protect systems from vulnerabilities

   (c) To steal data

   (d) To sell security secrets

2. Which methodology is commonly used in penetration testing? (CO1, K1)

   (a) Black box testing

   (b) User acceptance testing

   (c) Stress testing

   (d) Performance testing

3. What does 'footprinting' refer to in the context of ethical hacking? (CO2, K2)

(a) Establishing a visible presence on a network

(b) Gathering information about a target without alerting them

(c) Injecting malware into a system

(d) Repairing security flaws

4. Which tool is best for footprinting a website's architecture? (CO2, K2)

(a) Nessus

(b) Nmap

(c) WireShark

(d) Burp Suite

5. Which protocol can be used for enumerating services on Windows servers? (CO3, K1)

(a) SMTP

(b) SNMP

(c) NetBIOS

(d) HTTP

6. What is vulnerability assessment primarily used for? (CO3, K2)

(a) Enhancing performance

(b) Patch management

(c) Identifying potential threats

(d) Monitoring network traffic

7. Which type of attack would be classified under system hacking? (CO4, K2)

(a) Phishing

(b) SQL injection

(c) Wireless hacking

(d) Wardriving

8. What is a common tool for hacking web servers? (CO4, K2)

(a) OWASP ZAP

(b) Wireshark

(c) Aircrack-ng

(d) Tcpdump

9. What is the main purpose of an Access Control List (ACL)? (CO5, K2)

(a) To determine which users can access the server

(b) To list users who are banned from the network

(c) To control the flow of traffic

(d) To monitor network performance

10. Which firewall technology is designed specifically for web applications? (CO5, K1)

(a) Packet-filtering firewall

(b) Stateful inspection firewall

(c) Web application firewall

(d) Next-generation firewall

Part B (5 × 5 = 25)

Answer **all** the questions not more than 500 words each.

11. (a) Describe the role of an ethical hacker in the security landscape. (CO1, K1)

Or

(b) Discuss the typical steps involved in a penetration testing methodology. (CO1, K3)

12. (a) Describe the methods used to perform network reconnaissance. (CO2, K2)

Or

(b) Compare the tools and techniques used for footprinting and reconnaissance in ethical hacking. (CO2, K4)

13. (a) Explain 'enumeration' in the context of network security. (CO3, K1)

Or

(b) Discuss the significance of vulnerability analysis in maintaining network security. (CO3, K3)

14. (a) Describe the processes involved in exploiting web application vulnerabilities. (CO4, K2)

Or

(b) Critique the use of tools like wardriving in the context of ethical hacking. (CO4, K4)

15. (a) Describe Access Control Lists (ACLs) and their functions. (CO5, K1)

Or

(b) Discuss the importance of honeypots in network security. (CO5, K3)

Part C (5 × 8 = 40)

Answer **all** the questions not more than 1000 words each.

16. (a) Analyze the challenges faced when balancing ethical considerations with effective penetration testing. (CO1, K2)

Or

(b) Create a simulation exercise to train security professionals in ethical hacking techniques. (CO1, K4)

17. (a) Illustrate a case study where effective footprinting led to the discovery of critical security breaches. (CO2, K3)

Or

(b) Design a tool that automates the process of collecting digital footprints from multiple sources. (CO2, K5)

18. (a) Explain the interdependencies between network enumeration and vulnerability exploitation. (CO3, K2)

Or

(b) Conduct a critical analysis of common vulnerabilities in popular operating systems and suggest mitigation strategies. (CO3, K4)

19. (a) Develop guidelines for ethical hackers to safely conduct wireless network hacking without breaching privacy laws. (CO4, K3)

Or

(b) Design a secure coding workshop aimed at reducing vulnerabilities in web and software applications. (CO4, K5)

20. (a) Analyze the effectiveness of different firewall technologies in various network environments. (CO5, K2)

Or

(b) Develop a policy framework that outlines the use and management of honeypots in corporate networks. (CO5, K4)

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R3683	Sub. Code 556302

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2025

Third Semester

Cyber Forensics

BEHAVIORAL BIOMETRICS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. Which metric is used to measure the performance of a biometric system's security? (CO1, K1)

   (a) Success rate

   (b) Conversion rate

   (c) Error rate

   (d) Engagement rate

2. What is 'layered biometric solutions' referring to? (CO1, K1)

   (a) A single biometric measure used repeatedly

   (b) Multiple biometric systems used simultaneously

   (c) A backup system for biometric failures

   (d) Periodic updates to biometric systems

3. What is a primary application of speech tagging in speech recognition technology? (CO2, K2)

(a) Determining the speech origin

(b) Analyzing speech patterns

(c) Identifying keywords

(d) Enhancing speech clarity

4. What does 'Computational Phonology' study within the field of speech recognition? (CO2, K2)

(a) Grammar rules

(b) Sound patterns

(c) Word meanings

(d) Sentence structures

5. What is the role of 'Computational Semantics' in speech recognition? (CO3, K1)

(a) To generate realistic sounding speech

(b) To understand and generate the meaning of sentences

(c) To create grammatically correct sentences

(d) To replicate accents accurately

6. How does 'Unification-Language modeling' benefit speech recognition systems? (CO3, K2)

(a) By reducing processing power needed

(b) By increasing the variety of languages recognized

(c) By integrating different linguistic models

(d) By standardizing the speech input format

7. What aspect of gait analysis is critical for identity verification? (CO4, K2)

(a) Speed of walking

(b) Style of walking

(c) Length of stride

(d) Symmetry of motion

8. How does 'Motion Analysis Systems' enhance gait analysis? (CO4, K2)

(a) By providing real-time feedback

(b) By increasing the database of gait patterns

(c) By reducing the errors in data collection

(d) By expanding the types of gait analyzed

9. What role does 'Ankle & Foot Complex' play in gait analysis? (CO5, K2)

(a) It determines the balance

(b) It controls the speed

(c) It adjusts the direction

(d) It provides the propulsion

10. Which technology improves the accuracy of gait analysis in detecting abnormalities? (CO5, K1)

(a) Facial recognition systems

(b) Voice recognition systems

(c) Fingerprint analysis

(d) Kinetic analysis tools

Part B (5 × 5 = 25)

Answer **all** the questions not more than 500 words each.

11. (a) How does biometric verification differ from biometric identification? (CO1, K2)

Or

(b) Analyze the trade-offs between convenience and security in biometric systems. (CO1, K4)

12. (a) Describe 'speech recognition' in biometrics. (CO2, K1)

Or

(b) Evaluate the role of Markov and Entropy models in speech synthesis. (CO2, K3)

13. (a) Explain the significance of language unification in speech recognition. (CO3, K2)

Or

(b) Critically analyze the role of pragmatics in understanding spoken language within biometrics. (CO3, K4)

14. (a) What are the fundamentals of gait analysis in biometrics? (CO4, K1)

Or

(b) Discuss the applications of EMG in gait analysis. (CO4, K3)

15. (a) How are pathological gaits identified in biometric systems? (CO5, K2)

Or

(b) Compare different technologies used to assess gait abnormalities. (CO5, K4)

Part C (5 × 8 = 40)

Answer **all** the questions not more than 1000 words each.

16. (a) Analyze the security implications of using biometrics in mobile devices. (CO1, K2)

Or

(b) Conduct a feasibility study on implementing layered biometric solutions in public transportation systems. (CO1, K4)

17. (a) Develop a prototype for a speech recognition system that uses deep learning to improve accuracy. (CO2, K3)

Or

(b) Design a speech recognition system tailored for multilingual environments. (CO2, K5)

18. (a) Evaluate the effectiveness of different semantic analysis frameworks in real-world applications. (CO3, K2)

Or

(b) Develop a comprehensive model that integrates syntactic parsing with semantic analysis for better speech recognition. (CO3, K4)

19. (a) Propose a hybrid model combining gait analysis with real-time location tracking for enhanced security in high-risk environments. (CO4, K3)

Or

(b) Create a sample database of gait patterns that can help in forensic analysis to identify suspects based on surveillance footage. (CO4, K5)

20. (a) Analyze the potential of integrating gait analysis with IoT devices for continuous health monitoring. (CO5, K2)

Or

(b) Construct a predictive model that uses gait data to forecast potential falls in elderly patients. (CO5, K4)

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R3684	Sub. Code
	556305

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2025

Third Semester

Cyber Forensics

CYBER LAW POLICIES AND IT ACT

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. Which legal principle applies to online defamation in cyber space? (CO1, K1)
   (a) Libel (b) Slander
   (c) Negligence (d) Strict liability

2. Which section of the IT Act 2000 deals with hacking? (CO1, K1)
   (a) Section 43 (b) Section 45
   (c) Section 66 (d) Section 70

3. What is the benefit of using a CA in e-Governance? (CO2, K1)
   (a) Increased security
   (b) Improved efficiency
   (c) Enhanced transparency
   (d) All of the above

4. What is the best way to protect yourself from cybercrimes? (CO2, K1)
   (a) Using strong passwords and keeping them confidential
   (b) Opening email attachments from unknown sources
   (c) Using public Wi-Fi to access sensitive information
   (d) Disabling firewall and antivirus software

5. What is the primary intention behind hacking into a computer system to access child pornography? (CO3, K1)
   (a) To steal sensitive information
   (b) To disrupt service availability
   (c) To gain unauthorized access to explicit content
   (d) To compromise data integrity

6. What is the primary intention behind cyber terrorism? (CO3, K1)
   (a) Financial gain
   (b) Political activism
   (c) Revenge
   (d) Causing fear and disruption

7. Which of the following is a limitation on copyright liability for internet service providers? (CO4, K1)
   (a) Safe harbor provisions
   (b) Fair use provisions
   (c) Digital rights management provisions
   (d) Open-source provisions

8. Which of the following is an example of software piracy? (CO4, K1)
   (a) Using a software trial version
   (b) Sharing software with colleagues
   (c) Installing software without a license
   (d) Creating software for personal use

9. What is the legal position on patenting software "as such" in Europe? (CO5, K1)
   (a) Software is patentable
   (b) Software is not patentable
   (c) Software is patentable only if it has a technical character
   (d) Software is patentable only if it has industrial applicability

10. What is the primary legislation governing patents in India? (CO5, K1)

(a) Patents Act, 1970

(b) Patents Act, 2005

(c) Intellectual Property Rights Act, 2002

(d) Patent and Designs Act, 1911

Part B (5 × 5 = 25)

Answer **all** the questions not more than 500 words each.

11. (a) Discuss in detail about Indian context of Jurisdiction. (CO1, K4)

Or

(b) Discuss IT Act 2000. (CO1, K4)

12. (a) Discuss the duties of subscribers. (CO2, K4)

Or

(b) What is Cyber crime? Explain it. (CO2, K2)

13. (a) Explain about Hacking child pornography. (CO3, K5)

Or

(b) Discuss about credit card fraud. (CO3, K4)

14. (a) Illustrate Copyrights Vs Patents. (CO4, K4)

Or

(b) Discuss about trademarks. (CO4, K4)

15. (a) Discuss about legal position on computer related patents. (CO5, K4)

Or

(b) Explain the Domain Name Disputes. (CO5, K5)

Part C (5 × 8 = 40)

Answer **all** the questions not more than 1000 words each.

16. (a) Discuss jurisdiction in cyber space. (CO1, K4)

Or

(b) Explain E-Commerce activity. (CO1, K5)

17. (a) Explain the role of certifying authorities. (CO2, K5)

Or

(b) Explain the impact of the Act on other law. (CO2, K5)

18. (a) Explain the Denial-of-Service attack. (CO3, K5)

Or

(b) Discuss in detail about Indian court cases. (CO3, K4)

19. (a) Elaborately discuss the software piracy. (CO4, K4)

Or

(b) Discuss about authorship an assignment issues. (CO4, K4)

20. (a) Discuss Domain names registration. (CO5, K4)

Or

(b) Discuss about the cyber-squatting. (CO5, K4)

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R3685

Sub. Code
556306

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2025

Third Semester

Cyber Forensics

SOCIAL MEDIA FORENSICS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective questions by choosing the correct option.

1. What is the importance of timestamp analysis in social media forensics? (CO1, K1)

   (a) To determine the timing of a post

   (b) To identify the location of a user

   (c) To analyze the content of a post

   (d) To determine the device used to make a post

2. What is the primary motive behind social media cybercrimes? (CO1, K1)

   (a) Financial gain (b) Personal revenge

   (c) Social engineering (d) All of the above

3. What is the primary effect of revelation in OSM? (CO2, K1)

   (a) Increased privacy

   (b) Decreased privacy

   (c) No impact on privacy

   (d) Increased security

4. What is the primary purpose of location-based services (LBS) on OSM? (CO2, K1)

(a) To share location data with friends

(b) To track user movements

(c) To provide location-based advertising

(d) To enable location-based features

5. What is the primary goal of identifying fraudulent entities in online social networks? (CO3, K1)

(a) To detect fake accounts

(b) To prevent cyberbullying

(c) To identify online harassment

(d) To detect malware

6. Which policing strategy focuses on proactive, preventative measures? (CO3, K1)

(a) Reactive policing

(b) Proactive policing

(c) Community policing

(d) Intelligence-led policing

7. Which of the following is a characteristic of spam in social media? (CO4, K1)

(a) Relevant and timely content

(b) Irrelevant and unsolicited content

(c) High engagement rates

(d) Low engagement rates

8. What is the role of algorithms in spreading fake news on social media? (CO4, K1)

(a) They can detect and remove fake news

(b) They can prioritize and amplify fake news

(c) They have no impact on fake news

(d) They can only detect fake news

9. Which of the following open source tools is used for social media data analysis? (CO5, K1)

(a) Gephi (b) Tableau

(c) Power BI (d) All of the above

10. Which of the following is a legal concern for social media influencers? (CO5, K1)

(a) Sponsorship disclosure

(b) Product liability

(c) False advertising

(d) All of the above

Part B (5 × 5 = 25)

Answer **all** the questions not more than 500 words each.

11. (a) Discuss in detail about drawbacks in online social network. (CO1, K4)

Or

(b) Discuss about cybercrime related to social media. (CO1, K4)

12. (a) Discuss the online social network. (CO2, K4)

Or

(b) What is OSM? Explain the effects in OSM.(CO2, K2)

13. (a) Explain about identities across different social network. (CO3, K5)

Or

(b) Discuss about effective and usable privacy setting. (CO3, K4)

14. (a) Illustrate hate crime on social media. (CO4, K4)

Or

(b) Discuss about fake news on social media. (CO4, K4)

15. (a) Discuss about social media analytics. (CO5, K4)

Or

(b) Explain the Intermediary guidelines and digital media ethics code. (CO5, K5)

Part C (5 × 8 = 40)

Answer **all** the questions not more than 1000 words each.

16. (a) Discuss data collection from social network. (CO1, K5)

Or

(b) Explain opportunities in online social network. (CO1, K5)

17. (a) Explain the information privacy disclosure. (CO2, K5)

Or

(b) Explain the location-based services on OSM. (CO2, K5)

18. (a) Explain how to identify fraudulent entities. (CO3, K5)

Or

(b) Discuss in detail about policies and OSM. (CO3, K4)

19. (a) Elaborately discuss about data and characterization of spam. (CO4, K4)

Or

(b) Discuss about abuse and extremism via online social media. (CO4, K4)

20. (a) Discuss about any one case studies in social media. (CO5, K4)

Or

(b) Discuss about the IT rules 2021. (CO5, K4)

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R3686

Sub. Code
556507

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2025

Third Semester

Cyber Forensics

Elective – DATA ANALYTICS AND PRIVACY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the objective questions by choosing the correct option.

1. What is a key characteristic of Big Data? (CO1, K1)
   (a) Small datasets
   (b) Structured data only
   (c) High volume, variety, and velocity
   (d) Low-velocity data

2. Which of the following is NOT a common analytics tool mentioned in Big Data environments? (CO1, K1)
   (a) Hadoop (b) Excel
   (c) Data Warehouse (d) Spark

3. What is the first step in the Data Analytics Life Cycle? (CO2, K2)
   (a) Model planning (b) Business discovery
   (c) Data preparation (d) Deployment

4. Which technique is used for categorizing documents by topics in analytics? (CO2, K2)

(a) ARIMA model

(b) Naive Bayes

(c) Time series analysis

(d) TF-IDF

5. What is the purpose of clustering in data analytics? (CO3, K1)

(a) To simplify data entry

(b) To categorize data into distinct groups

(c) To decrease the amount of data stored

(d) To speed up the network

6. Which algorithm is primarily used for clustering analysis? (CO3, K2)

(a) K-means Clustering

(b) Linear Regression

(c) Logistic Regression

(d) Encryption Algorithm

7. What is MapReduce primarily used for? (CO4, K2)

(a) Reducing the size of the data

(b) Mapping network drives

(c) Processing and generating large data sets

(d) Correcting data errors

8. Which of the following is not a function of Apache Hadoop? (CO4, K2)

(a) Real-time analytics

(b) Data storage

(c) Data processing

(d) Fault tolerance

9. What is the primary purpose of data privacy laws in data analytics? (CO5, K2)

(a) To speed up data processing

(b) To protect individual privacy rights

(c) To increase data storage capacity

(d) To reduce the cost of data analysis

10. Which of the following best describes 'Responsible Data Handling'? (CO5, K1)

(a) Sharing data with as many stakeholders as possible

(b) Storing data without any backups

(c) Ensuring data is used ethically and responsibly

(d) Deleting old data regardless of its importance

Part B ($5 \times 5 = 25$)

Answer **all** questions not more than 500 words each.

11. (a) Explain how Big Data differs from traditional data systems. (CO1, K2)

Or

(b) Analyze how the evolution of data storage has impacted business intelligence. (CO1, K4)

12. (a) What is the purpose of the Data Preparation Phase in the analytics lifecycle? (CO2, K1)

Or

(b) Discuss the importance of framing the problem in the initial phases of a data analytics project. (CO2, K3)

13. (a) Explain how the Apriori Algorithm is used for association rule learning. (CO3, K2)

Or

(b) Analyze the impact of data quality on the outcomes of predictive models. (CO3, K4)

14. (a) List the functions of Apache Hadoop in managing Big Data. (CO4, K1)

Or

(b) Explain the advantages of using MapReduce for large-scale data processing. (CO4, K3)

15. (a) Explain how data anonymization protects user privacy. (CO5, K2)

Or

(b) Analyze a case study where data privacy was breached and discuss its implication. (CO5, K4)

Part C (5 × 8 = 40)

Answer **all** questions not more than 1000 words each.

16. (a) Describe the different types of data classifications used in big data environments. (CO1, K1)

Or

(b) Discuss the challenges of moving from traditional BI systems to big data analytics. (CO1, K3)

17. (a) Describe how the ETL process is used when integrating new data sources in a company. (CO2, K2)

Or

(b) Illustrate the main tasks involved in preparing and modeling data. (CO2, K4)

18. (a) Discuss how clustering algorithms can be applied to improve customer segmentation in retail. (CO3, K1)

Or

(b) Describe how ARIMA models are used for economic and financial forecasting. (CO3, K3)

19. (a) Explain the application of MapReduce in processing large data sets. (CO4, K2)

Or

(b) Illustrate the key features of Apache Mahout in supporting machine learning algorithms. (CO4, K4)

20. (a) Discuss how data privacy laws impact analytics projects in healthcare. (CO5, K1)

Or

(b) Describe the rights and responsibilities of data privacy and ethics. (CO5, K3)

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