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SCHOOL OF COMPUTER APPLICATIONS
DEPARTMENT OF BSc(Cyber Security)

UNIT TEST-I SEPTEMBER-2025

| | | |
|--------------------------------|----------------------------------------------------|------------------------------------------------------------------------------------|
| PROGRAM: BSC (CS) | SEMESTER: V | BATCH: 2023-2026 |
| COURSE CODE & NAME: | UETAD104/INTRODUCTION TO GAMING APPLICATION | |
| MAXIMUM MARKS: | 20 | DATE OF EXAM:- 18TH SEP 2025 TIME OF EXAM: - 4:45 P.M. |

Course Outcomes:

1. Define key game theory concepts, including strategies, payoffs, Nash equilibrium, and dominant strategies, and identify their applications in real-world scenario.
2. Compute pure and mixed strategy Nash equilibria in normal-form games and apply probability-based decision-making techniques in mixed strategies.
3. Solve zero-sum games using the minimax theorem, apply iterative elimination techniques, and explain the concept of correlated equilibria.
4. Construct and analyze extensive form games, apply backward induction, and differentiate between mixed and behavioral strategies in imperfect information settings.
5. Analyze repeated games, stochastic games, Bayesian Nash equilibrium, and cooperative game concepts like the Shapley value and Core, applying them to strategic decision-making.

Instructions: Give Proper Instructions.

- All questions are compulsory, but attempt only the number of questions mentioned in each section.
- Write answers neatly and to the point, Each question carries 5 marks.
- Use clear diagrams, tables, or charts if required to explain your answer.
- Answer any 2 questions from Q.1 and any 2 questions from Q.2.

| QUESTIONS | | CO | BTL | Marks |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-------|-------|
| Q.1 Attempt the following (Any 2) | | Max Marks: 10 (2*5) | | |
| A | Define the concept of game theory. Why is it considered important in decision-making? Also, Explain any four real life examples. | CO1 | I, II | 05 |
| B | What do you mean by a strategy in game theory? Explain the different types of strategies used by players in games. | CO1 | I, II | 05 |
| C | Illustrate the following terms with their proper definitions and suitable examples: a) Normal Form of a game b) Payoff in a game | CO1 | II | 05 |
| Q.2 Attempt the following (Any 2) | | Max Marks: 10 (2*5) | | |
| A | What do you understand by a Mixed Strategy Nash Equilibrium (MSNE)? Summarize its definition and the conditions that must be satisfied for such an equilibrium to exist. | CO2 | I, II | 05 |
| B | Compare Pure Strategy Nash Equilibrium and Mixed Strategy Nash Equilibrium, with a suitable example. | CO2 | II | 05 |
| C | In certain games, players must use mixed strategies instead of pure strategies. Explain why this is necessary using the example of Matching Pennies or Rock-Paper-Scissors. | CO2 | I, II | 05 |

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DEPARTMENT OF BSc(Cyber Security)

UNIT TEST-I SEPTEMBER-2025

PROGRAM: BSC(CYBER SECURITY)

SEMESTER: V

BATCH: 2023-26

COURSE CODE & NAME:

UBS301 ETHICAL HACKING

MAXIMUM MARKS:

20

DATE OF EXAM:- 18/09/2025

TIME OF EXAM: - 12:10 PM TO 1:10 PM

Course Outcomes:

1. To Understand the core functionalities of Ethics in Regards to the Computer Security
2. To Perform foot printing and scanning.
3. To Demonstrate the Technique for System Hacking
4. To Characterise the Malware and there attacks and detect and prevent them.
5. To Detect and prevent the security attacks in different environments.

Instructions:

| QUESTIONS | | CO | BTL | Marks |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-------|-------|
| Q.1 Attempt the following (Any 2) | | Max Marks: 10 (2*5) | | |
| A | Explain the concept of Ethical Hacking. Discuss its importance in modern cyber security. How does it differ from malicious hacking, and what role does it play in protecting organizations? | CO1 | 2,4 | 05 |
| B | Describe different types of hackers (e.g., White Hat, Black Hat, Grey Hat, Script Kiddies, Hacktivists). Provide suitable examples of their activities and explain how ethical hackers contribute positively compared to crackers. | CO1 | 1,2,5 | 05 |
| C | What are the fundamental principles of Information Security? Explain the CIA triad (Confidentiality, Integrity, Availability) in detail with examples. How do these principles guide security controls in organizations? | CO1 | 2,3,4 | 05 |
| Q.2 Attempt the following (Any 2) | | Max Marks: 10 (2*5) | | |
| A | Define footprinting. Differentiate between active and passive footprinting with examples. How does it help ethical hackers in reconnaissance? | CO2 | 1,2,3 | 05 |
| B | Explain the concept of network scanning. Compare port scanning and vulnerability scanning with examples. | CO2 | 2,3 | 05 |
| C | Illustrate the process of WHOIS lookup and traceroute with examples. How do these tools help in ethical hacking investigations? | CO2 | 3,4 | 05 |

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SCHOOL OF COMPUTER APPLICATIONS
DEPARTMENT OF BSc (Cyber Security)

Unit Test-I SEPTEMBER-2025

| | | |
|-------------------------------|------------------------------------------------------|-------------------------------------------------------|
| Program: BSc (Cyber Security) | Semester: 5 th | Batch: 2023-26 |
| Course Code & Name: | UBS303/MAJM & MALWARE ANALYSIS & REVERSE ENGINEERING | |
| Maximum Marks: | 20 | Date of Exam: - 19/09/2025 Time of Exam: - 4:45 PM |

Course Outcomes:

1. Define and explain the key concepts of malware analysis, including virus, worms, ransomware, and spyware.
2. Identify and use industry-standard tools such as IDA Pro, Olly Dbg, and Wireshark to perform malware analysis.
3. Analyze malicious code using reverse engineering techniques to extract information about its behavior and structure.
4. Implement methodologies to create secure environments for safely testing and analyzing malware.
5. Demonstrate an understanding of global cyber laws and ethical guidelines related to malware analysis and reverse engineering.

Instructions: Give Proper Instructions.

1. Draw neat, labelled diagrams or give examples wherever appropriate.
2. Answer any TWO questions from Q.1 and any TWO questions from Q.2.

| QUESTIONS | | CO | BTL | MARKS |
|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----|-------|
| Q.1 ATTEMPT THE FOLLOWING (SOLVE ANY 2) | | Max Marks: 10 (2*5) | | |
| A | Define malware. Explain its major types—viruses, worms, Trojans, ransomware, spyware, rootkits, and adware—with suitable examples. | CO1 | I | 05 |
| B | Explain how malware can cause data breaches and identity theft | CO1 | II | 05 |
| C | Describe the stages of the malware life cycle: delivery, installation, execution, persistence, and propagation. Provide a brief real-world example for each stage. | CO1 | II | 05 |
| Q.2 ATTEMPT THE FOLLOWING (SOLVE ANY 2) | | Max Marks: 10 (2*5) | | |
| A | What is static analysis in malware investigation? Explain how to examine file type, size, structure, metadata, and strings to gather basic information. | CO2 | II | 05 |
| B | Discuss the limitations of static analysis when analyzing packed, encrypted, or obfuscated malware. Suggest how these challenges can be mitigated. | CO2 | IV | 05 |
| C | Define file signatures. How can they help identify malicious files? | CO2 | III | 05 |

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Unit Test-I SEPTEMBER-2025

| | | |
|-----------------------------|------------------------------------------------------------|--------------------------------|
| Program: TYBSC (CS) | Semester: V th | Batch: 2023-2026 |
| Course Code: UBS305A | Course Name: Cyberspace Operations & Design | |
| Maximum Marks: 20 | Date & Day: 20 th Sep 2025, Saturday | Time of Exam: 12:10 P.M |

Course Outcomes:

1. Understand the Cyberspace Environment and Design.
2. Cyberspace Operational Approaches, Cyberspace Operations, and cyberspace integrations.
3. Apply knowledge to building Cyber Warriors and Warrior Corps.
4. Analyze to Designing Cyber Related Command.
5. Examine Training and Readiness for Cyber Related Commands.

Instructions: Give Proper Instructions.

1. All questions are **compulsory** as per instructions given.
2. The paper is divided into **two sections**:
 - Q.1:** Attempt **any 2** out of the given sub-questions.
 - Q.2:** Attempt **any 2** out of the given sub-questions.
3. Each sub-question carries **5 marks**.

NotesSociety

| QUESTIONS | | CO | BTL | Mar ks |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---------|-----------|
| Q.1 Attempt the following (Any 2) | | Max Marks: 10 (2*5) | | |
| A | Define Cyberspace and explain why it is considered a domain of warfare. Illustrate your answer with real-world examples of cyber conflicts. | CO1 | BL 1 | 05 |
| B | Explain the scope of cyberspace operations and design. How does it extend beyond traditional IT security into strategic, operational, and tactical dimensions? | CO1 | BL 2 | 05 |
| C | Discuss the steps involved in developing a design approach and planning for cyberspace operations. Provide a structured example of a cyber operation plan for securing a government or enterprise network. | CO1 | BL 5 | 05 |
| Q.2 Attempt the following (Any 2) | | Max Marks: 10 (2*5) | | |
| A | Explain the fundamental principles of Web Application Security. Why are these principles important in software development? | CO2 | BL 2 | 05 |
| B | Define Attack Surface Reduction (ASR). Explain strategies to reduce the attack surface in web applications | CO2 | BL 1, 2 | 05 |
| C | Explain the Microsoft Security Development Lifecycle (SDL). How does it help in building secure web applications? | CO2 | BL 2, 1 | 05 |

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DEPARTMENT OF BSc(CS)

Unit Test-I SEPTEMBER-2025

| | | |
|------------------------------------------|----------------------------|-------------------------------|
| PROGRAM: BSc(CS) | SEMESTER: IV | BATCH:2023-2026 |
| COURSE NAME: APPLIED CRYPTOGRAPHY | COURSE CODE: UBS306 | |
| MAXIMUM MARKS:20 | DATE :-20-09-2025 | TIME OF EXAM: 4:45 P.M |

Course Outcomes:

1. Explain the principles of cryptographic security and cryptanalysis techniques.
2. Apply symmetric and asymmetric cryptographic algorithms for secure communication.
3. Implement cryptographic protocols for authentication and key management.
4. Analyze vulnerabilities in cryptographic systems and suggest countermeasures.
5. Design and develop secure applications using modern cryptographic techniques.

Instructions: Give Proper Instructions.

1. All questions are compulsory as per instructions given.
2. The paper is divided into two sections:
Q.1: Attempt any 2 out of the given sub-questions.
Q.2: Attempt any 2 out of the given sub-questions.
3. Each sub-question carries 5 marks.

NotesSociety

| QUESTIONS | | CO | BTL | Marks |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----|-------|
| Q.1 Attempt the following (Any 2) | | Max Marks: 10 (2*5) | | |
| A | Explain the term Cryptography with diagram | CO1 | BL2 | 05 |
| B | Illustrate Block cipher with diagram | CO2 | BL2 | 05 |
| C | Define symmetric key algorithm with example. | CO3 | BL1 | 05 |
| Q.2 Attempt the following (Any 2) | | Max Marks: 10 (2*5) | | |
| A | State RSA Algorithm with example. | CO1 | BL1 | 05 |
| B | Discuss Electronic Code block with diagram | CO2 | BL2 | 05 |
| C | Calculate GCD of (18,27) Calculate GCD (12,15) Calculate 47 mod 7 Calculate (15+17) mod 7 Calculate (12 x 13) mod 5 | CO3 | BL2 | 05 |