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BRAINWARE UNIVERSITY

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Term End Examination 2025-2026

Programme – B.Tech.(RA)-2021/B.Tech.(RA)-2022

Course Name – Privacy and Security in IoT

Course Code - OEC-ECR801A

(Semester VIII)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

(i) Identify the a key difference between M2M and IoT.

- | | |
|--|--|
| a) IoT does not require the internet, whereas M2M does | b) M2M is primarily device-to-device communication, while IoT integrates cloud computing |
| c) IoT is a subset of M2M | d) M2M relies on AI, while IoT does not |

(ii) Indicate the primary role of the M2M value chain.

- | | |
|---|---|
| a) Connecting only mobile devices to the internet | b) Ensuring smooth data exchange between machines with minimal human intervention |
| c) Enhancing gaming experience in online applications | d) Increasing social media engagement |

(iii) Identify which component is responsible for data processing and analytics.

- | | |
|-----------------------|------------------------------------|
| a) Connectivity layer | b) Cloud and Data Management layer |
| c) Perception layer | d) Actuator layer |

(iv) Indicate the definition of real-time communication in IoT.

- | | |
|---|--|
| a) A communication method that ensures immediate data transmission and response | b) A technique where data is sent in bulk at scheduled intervals |
| c) A security protocol for IoT networks | d) A process where devices communicate only through wired networks |

(v) Discuss the significance of IoT physical design.

- | | |
|--|---|
| a) It refers to the data storage structure of IoT applications | b) It defines the actual hardware, sensors, actuators, and connectivity |
| c) It deals only with software protocols | d) It focuses on social and ethical impacts of IoT |

(vi) Indicate the logical design of IoT.

- | | |
|---|---|
| a) It involves the physical components of IoT | b) It includes high-level abstractions, such as IoT architecture and models |
|---|---|

- c) It refers to IoT hardware configurations only
- (vii) Identify IoT Physical Devices and Endpoints.
- a) The digital services used in cloud computing
- b) The hardware components like sensors, actuators, and controllers
- c) The social platforms supporting IoT communication
- d) The websites where IoT data is stored
- (viii) Explain why IoT security and privacy are important.
- a) To ensure efficient device connectivity
- b) To prevent unauthorized access and data breaches
- c) To improve IoT aesthetics
- d) To promote high-speed internet
- (ix) Explain the role of cloud computing in IoT.
- a) It helps store, process, and analyze IoT data efficiently
- b) It is used only for gaming applications
- c) It prevents IoT from connecting to the internet
- d) It has no role in IoT
- (x) Define availability in the context of IoT security.
- a) Ensures data and services are accessible when needed
- b) Limits access to IoT networks
- c) Protects IoT hardware from overheating
- d) Controls user permissions
- (xi) Explain why IoT security is challenging compared to traditional IT security.
- a) IoT devices have resource constraints and limited security
- b) IoT devices have stronger built-in security
- c) IoT security focuses only on software protection
- d) IoT systems do not require security protocols
- (xii) Define security classification in IoT.
- a) The process of categorizing data based on its sensitivity
- b) A method of increasing data storage capacity
- c) The act of limiting device communication
- d) A technique for reducing encryption costs
- (xiii) Define the role of multi-factor authentication in IoT security.
- a) Adds additional layers of security for user verification
- b) Reduces the need for encryption
- c) Decreases device authentication time
- d) Allows unrestricted access to all users
- (xiv) Define WebSockets in IoT communication.
- a) A full-duplex communication protocol
- b) A client-server protocol
- c) Bootcamp Next
- d) None Of These
- (xv) Discuss how privacy is maintained in smart grid IoT applications.
- a) By encrypting user data
- b) Faster data transmission
- c) Developed privacy-aware architectures
- d) None

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Explain the key components of the physical design of IoT. (3)
3. Define M2M communication. (3)
4. Discuss the main challenges in IoT security. (3)
5. Discuss the key components of an HTTPS protocol. (3)
6. Explain IoT Authentication and Authorization mechanisms. (3)

OR

Differentiate between Public and Private Data Classification. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Illustrate the components of the M2M value chain and explain the role of network providers in M2M communication. (5)
8. Explain confidentiality, integrity, and availability in the context of information security. (5)
9. Locate the Physical Design of IoT. Describe its main components. (5)
10. Examine the different IoT tools and their purposes. (5)
11. Explain the advantages and disadvantages of IoT Enabling Technologies. (5)
12. Illustrate the components of an HTTP request. (5)

OR

Explain the structure of an HTTP request and response. (5)

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