

B.Tech DEGREE EXAMINATION, NOVEMBER 2023

Seventh Semester

18CSE445T - INTERNET OF THINGS SECURITY*(For the candidates admitted during the academic year 2020 - 2021 & 2021 - 2022)***Note:**

- i. **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
- ii. **Part - B** and **Part - C** should be answered in answer booklet.

Time: 3 Hours**Max. Marks: 100****PART - A (20 × 1 = 20 Marks)****Marks BL CO**

Answer all Questions

- _____ is a technology less heard of when compared to other technologies but is very useful in IoT.
(A) RFID (B) Sensor
(C) Actuator (D) Network
1 1 1
- Nabto's is a mutual authentication based on _____.
(A) Elliptic curve cryptography (B) RSA Algorithm
(C) RIPEMD (D) MD5
1 1 1
- _____ is needed to design reliable solutions to detect and prevent these threats efficiently.
(A) Risk Assessment (B) Fault Tree
(C) Understanding (D) Risk Tree
1 1 1
- False sensor data injection is _____ type of sensor based threats.
(A) Passive (B) Active
(C) Denial of Service (D) Direct
1 2 1
- With the number of _____ on ATMs on the rise, secure remote connectivity is vital for machine-to-machine (M2M) environments.
(A) Physical tampering (B) Touchless attacks
(C) Active attack (D) Passive Attack
1 1 2
- _____ provides miscellaneous services to the lower layers and also capable to automatically compute and process information.
(A) Perception Layer (B) Network Layer
(C) Processing Layer (D) Application Layer
1 2 2
- For the physical environment to work correctly and better, it is important to monitor the _____ of physical processes.
(A) Environment (B) Behavior
(C) Vulnerabilities (D) Attributes
1 1 2
- _____ are two examples of hacking ICS attacks that can be used to spy on people.
(A) SCADA Systems (B) DuQu and Flame
(C) Carshark (D) Blackout
1 1 2
- Which of the following is true for bitcoin?
(A) A transaction and block verification protocol (B) An unregulated censorship resistant shadow currency
(C) The technology that underpins Hyperledger (D) A private network
1 1 3

10. What type of hash is used when there is a fixed number of items to be hashed, such as the items in a block header, and we are verifying the composite block integrity?	1	1	3
(A) Tree-structured Hash			
(B) Complex hash			
(C) Simple hash			
(D) Either			
11. What does P2P stand for?	1	1	3
(A) Password to Password			
(B) Peer to Peer			
(C) Product to Product			
(D) Private key to Public key			
12. Where do you store your cryptocurrency?	1	1	3
(A) Back account			
(B) Wallet			
(C) Floppy disk			
(D) Pocket			
13. Which of the following is not a type of consensus mechanism?	1	1	4
(A) Proof of work			
(B) Proof of stake			
(C) Directed Acyclic Graph			
(D) Proof of mining			
14. _____ is a collection of code and data that is deployed using cryptographically signed transactions on the blockchain network.	1	1	4
(A) Blockchain			
(B) Smart contracts			
(C) Hyperledger			
(D) Consensus			
15. Which of the following is not a blockchain attack?	1	2	4
(A) 51% attack			
(B) Selfish mining			
(C) Man in the middle attack			
(D) Race Attack			
16. _____ hosts the software needed for transaction initiation, validation, mining, block creation, and smart contract execution.	1	2	4
(A) External Account			
(B) EVM			
(C) Ethereum full node			
(D) Smart Contract			
17. _____ takes the electrical signal and converts it into certain physical actions.	1	1	5
(A) Actuator			
(B) RFID			
(C) Sensors			
(D) Multiplexer			
18. A _____ is an example of an actuator.	1	1	5
(A) Sensor Networks			
(B) Servo motor			
(C) Control unit			
(D) Stepper motor			
19. _____ located in a conference room can help an employee locate and schedule an available room for a meeting, ensuring the proper room type, size and features are available.	1	1	5
(A) Smart sensors			
(B) Smart home			
(C) Google home			
(D) August doorbell cam			
20. Some devices have integrated _____ capabilities that minimized the amount of data that must be sent to the cloud or to the data center.	1	1	5
(A) Monitoring			
(B) Data processing			
(C) Controlling			
(D) RFID			

PART - B (5 × 4 = 20 Marks)

Answer any 5 Questions

	Marks	BL	CO
21. What are attacks on sensors of IoT devices? Explain it.	4	2	1
22. What are the proactive measures to safeguard the perception layer of IoT?	4	1	2
23. Illustrate the limitations of Bitcoin.	4	2	3
24. Differentiate hot and cold storage in wallets.	4	2	3
25. Devise the working principle of hyper ledger fabric work.	4	4	4

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|--|---|---|---|
| 26. How IoT can turn beneficial for your organization where you are working as Director – Technology & Development and identify areas of deployment to foster innovation and growth? | 4 | 2 | 5 |
| 27. What is IoT Data Analytics? How it benefits the business process? | 4 | 2 | 5 |

Marks BL CO

PART - C (5 × 12 = 60 Marks)

Answer all Questions

- | | | | |
|---|----|---|---|
| 28. (a) Outline privacy impact analysis and safety impact analysis with neat example.
(OR)
(b) What are the authentication methods in IoT? Explain each method with suitable example. | 12 | 2 | 1 |
| 29. (a) Explain how the game theory is used to strength the security and privacy in IoT.
(OR)
(b) What is the role of networking for IoT? Examine the challenges and barriers in IoT. | 12 | 4 | 2 |
| 30. (a) What is distributed consensus? Explain how it is implemented in Bitcoin system.
(OR)
(b) What is public key cryptography? Explain with suitable example about Merkle signature scheme. | 12 | 2 | 3 |
| 31. (a) What are the ways to burn bitcoins, i.e., to make a transaction unredeemable? Which of these allow a proof of burn, i.e., convincing any observer that no one can redeem such a transaction?
(OR)
(b) What are the most common blockchain attacks? Inspect the various attacks on blockchain consensus? | 12 | 4 | 4 |
| 32. (a) Examine various type sensors and actuators in IoT.
(OR)
(b) What are the IoT security threats? Elaborate in each threat with an example. | 12 | 4 | 5 |

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