

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 40 minutes.
- ii. **Part - B** and **Part - C** should be answered in answer booklet.

Time: 3 Hours**Max. Marks: 100****Part - A (20 × 1 Marks = 20 Marks)**Answer **All** Questions

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|---|---|---|---|
| 1. _____ is a technology less heard of when compared to other technologies but is very useful in IoT. | 1 | 1 | 1 |
| (A) RFID | | | |
| (B) Sensors | | | |
| (C) Actuators | | | |
| (D) Flags | | | |
| 2. Nabto's is a mutual authentication based on _____. | 1 | 1 | 1 |
| (A) Elliptic Curve Cryptography | | | |
| (B) RSA Algorithm | | | |
| (C) RIPEMD | | | |
| (D) MD5 | | | |
| 3. _____ is needed to design reliable solutions to detect and prevent these threats efficiently. | 1 | 1 | 1 |
| (A) Risk Assessment | | | |
| (B) Faulty Tree | | | |
| (C) Understanding | | | |
| (D) Risk Tree | | | |
| 4. False sensor data injection is _____ type of sensor based threats. | 1 | 1 | 1 |
| (A) Passive | | | |
| (B) Active | | | |
| (C) Denial of Service | | | |
| (D) Direct | | | |
| 5. With the number of _____ on ATMs on the rise, secure remote connectivity is vital for machine-to-machine (M2M) environments. | 1 | 1 | 2 |
| (A) Physical tampering | | | |
| (B) touchless attacks | | | |
| (C) Active Attack | | | |
| (D) Passive Attack | | | |
| 6. _____ provides miscellaneous services to the lower layers and also capable to automatically compute and process information. | 1 | 1 | 2 |
| (A) Perception Layer | | | |
| (B) Network Layer | | | |
| (C) Processing Layer | | | |
| (D) Application Layer | | | |
| 7. For the physical environment to work correctly and better, it is important to monitor the _____ of physical processes | 1 | 1 | 2 |
| (A) Environment | | | |
| (B) Behaviour | | | |
| (C) Vulnerabilities | | | |
| (D) Attributes | | | |
| 8. _____ are two examples of hacking ICS attacks that can be used to spy on people | 1 | 1 | 2 |
| (A) SCADA Systems | | | |
| (B) DuQu and Flame | | | |
| (C) Carshark | | | |
| (D) Blackout | | | |
| 9. 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 | | | |

10. What is Bitcoin?		1	1	3
(A) A transaction and block verification protocol	(B) An unregulated censorship resistant shadow currency			
(C) A private network	(D) The technology that underpins Hyperledger			
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) Bank account	(B) Wallet			
(C) Floppy Disk	(D) Pocket			
13. What is a dApp?		1	1	4
(A) A type of Cryptocurrency	(B) A condiment			
(C) A type of blockchain	(D) A decentralized Application			
14. What is the purpose of a nonce?		1	1	4
(A) A hash function	(B) prevents double spending			
(C) Sends information to the blockchain network	(D) random value			
15. In block chain, _____ tree stores all the transactions in a block by producing a digital fingerprint of the entire set of transactions		1	1	4
(A) Merkle	(B) Binary			
(C) AVL	(D) Red Black			
16. _____ hosts the software needed for transaction initiation, validation, mining, block creation, and smart contract execution.		1	1	5
(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. Most IIoT devices are sensors used to monitor an _____.		1	1	5
(A) Activity Tracker	(B) assembly line			
(C) Google Home	(D) August Doorbell Cam			

Part - B (5 × 4 Marks = 20 Marks)

Answer **any 5** Questions

21. What are the Security Challenges in the Network Layer?	4	3	1
22. Explain the mining process in the Bitcoin system.	4	3	3
23. Illustrate the limitations of Bitcoin.	4	3	3
24. What is distributed consensus? How it is implemented in the Bitcoin system?	4	3	4

25. How to store and use Bitcoins?	4	3	4
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	3	4
27. What is IoT Data Analytics? How it benefits the business process?	4	3	5

Part - C (5 × 12 Marks = 60 Marks)

Answer **All** Questions

28. a. Narrate privacy impact analysis and safety impact analysis with neat examples. (OR) b. How can be the devices or user authentications achieved in IoT? Why authentication is so important in IoT?	12	3	1
29. a. How the game theory is used to strengthen security and privacy in IoT? (OR) b. Design and discuss about a schema for IoT connectivity, Security and Remote Management.	12	3	2
30. a. What is distributed consensus? How it is implemented in Bitcoin system? (OR) b. What are Hash functions? Draw a Hash function derivative model. What is the role of Hash functions in Block Chain?	12	3	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. Differentiate proof of concept, proof of work, proof of stake and proof of burn with neat example.	12	4	4
32. a. Explain various types of sensors and actuators in IoT. (OR) b. How IoT can turn beneficial for your organization and identify areas of deployment to foster innovation and growth?	12	3	5

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