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Question Paper Code	13932
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B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2025
 Seventh Semester
Computer Science and Engineering (IoT)
20CIEL701 - ARTIFICIAL INTELLIGENCE OF THINGS
 Regulations - 2020

Duration: 3 Hours

Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)
 Answer ALL Questions

	<i>Marks</i>	<i>K- Level</i>	<i>CO</i>
1. A rational agent chooses actions that:	1	K1	CO1
(a) Are always correct			
(b) Maximize the expected performance measure			
(c) Require the least computation time			
(d) Avoid uncertainty			
2. An industrial IoT solution aims to enhance worker safety by detecting harmful gases in the environment. Which sensing type is essential for this purpose?	1	K1	CO1
(a) Gas sensing			
(b) Sound sensing			
(c) Vibration sensing			
(d) Air quality sensing			
3. In problem-solving, the environment must be:	1	K1	CO2
(a) Fully observable and deterministic			
(b) Partially observable and stochastic			
(c) Dynamic and continuous			
(d) Multi-agent and competitive			
4. The path cost function in AI problem formulation is used to:	1	K1	CO2
(a) Determine the shortest sequence of actions			
(b) Identify the initial state			
(c) Check if the goal has been reached			
(d) Evaluate percepts			
5. How does block chain enhance security in AIoT?	1	K1	CO3
(a) By encrypting IoT data at the device level			
(b) By decentralizing data storage and providing transparency			
(c) By controlling device energy consumption			
(d) By increasing the speed of data processing			
6. What is the main function of AI for IoT data analytics?	1	K1	CO3
(a) To reduce energy consumption in IoT devices			
(b) To process large volumes of data and generate actionable insights			
(c) To store all raw data in the cloud for future analysis			
(d) To synchronize devices in a network			
7. Which of the following is an example of a smart sensor used in AioT applications?	1	K1	CO4
(a) Temperature sensor in a smart thermostat			
(b) Wi-Fi router for connectivity			
(c) Cloud storage service for data			
(d) Voice assistant software			
8. In AIoT systems, what is the role of smart objects in human sensing applications?	1	K1	CO4
(a) To interact with human users and detect physical inputs			
(b) To store data for future processing			
(c) To control smart home devices			
(d) To transmit data to the cloud			
9. In an IoT-enabled manufacturing environment, what is the purpose of predictive maintenance?	1	K1	CO5
(a) Optimizing Production			
(b) Monitoring Energy Consumption			
(c) Preventing Machine Failures			
(d) Repairing Equipment			
10. Which of the following is a challenge of Healthcare IoT?	1	K1	CO6
(a) Lack of standardization in communication protocols			
(b) Limited availability of wearable devices			
(c) High implementation costs for remote monitoring systems			
(d) None of the mentioned			

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

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|---------------------------------------------------------------------------------------------------------------------------|---|----|-----|
| 11. Define Internet of Things. | 2 | K1 | CO1 |
| 12. Illustrate how a temperature sensor works in IoT with an simple example. | 2 | K2 | CO1 |
| 13. Outline the concept of rationality in Artificial Intelligence (AI). | 2 | K2 | CO2 |
| 14. What is problem-solving agent? | 2 | K1 | CO2 |
| 15. Illustrate on the core technologies that empower its intelligent decision-making and real-time functionality in AIOT. | 2 | K2 | CO3 |
| 16. List the importance of edge computing in enhancing AIoT applications. | 2 | K1 | CO3 |
| 17. How Artificial Intelligence (AI) contributes to data analytics in IoT systems? | 2 | K1 | CO4 |
| 18. Differentiate traditional IoT and AI-powered IoT. | 2 | K2 | CO4 |
| 19. How AI helps in production optimization. | 2 | K1 | CO5 |
| 20. Summarize the importance of edge computing in smart health systems. | 2 | K2 | CO5 |
| 21. How does AIoT support sustainable agriculture? | 2 | K1 | CO6 |
| 22. Interpret with an example the role of AIoT in reducing energy consumption. | 2 | K2 | CO6 |

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

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| 23. a) Explain the key characteristics of sensors such as accuracy, sensitivity, precision, and resolution. | 11 | K2 | CO1 |
| OR | | | |
| b) Summarize the steps for setting up a Raspberry Pi for IoT projects with an example. | 11 | K2 | CO1 |
| 24. a) Explain the concept of a rational agent and how does rational decision-making depend on performance measures, percept sequence, and environment knowledge. | 11 | K2 | CO2 |
| OR | | | |
| b) Illustrate the different types of AI problems with suitable examples. | 11 | K2 | CO2 |
| 25. a) Relate the role of AI in the Internet of Things and how does machine learning enable IoT devices to become smarter and more autonomous? | 11 | K2 | CO3 |
| OR | | | |
| b) Outline the potential and challenges of integrating Block chain technology with IoT and AIoT systems. | 11 | K2 | CO3 |
| 26. a) Develop the concept of wearable devices in AIoT with suitable real-time examples. | 11 | K3 | CO4 |
| OR | | | |
| b) Develop the technical architecture of AIoT with a neat diagram. | 11 | K3 | CO4 |
| 27. a) Construct a smart health monitoring system for detecting and managing chronic diseases. | 11 | K3 | CO5 |
| OR | | | |
| b) Construct an AIoT-based system that integrates sensors and AI for predictive fault detection in industrial automation equipment. | 11 | K3 | CO5 |
| 28. a) Utilize AIoT to monitor and manage supply chain logistics in agricultural produce distribution. | 11 | K3 | CO6 |
| OR | | | |
| b) Build vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communication for collision avoidance. | 11 | K3 | CO6 |