Reg. No.																

Question Paper Code	14564

M.E. / M.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2026

Second Semester

M.E. - Embedded Systems Technologies

24PESPC204 - INTERNET OF THINGS

Regulations - 2024

Duration: 3 Hours | Max. Marks: 100

PART – A (i) (MCQ)
(16 × 1 = 16 Marks)
Answer ALL Questions

		Marks	K – Level	CO
1.	_____ is the role of sensors in IoT systems. a) Data collection from the environment b) Mechanical motion control only c) Replacement of cloud computing d) Internet disconnection	1	K1	CO1
2.	_____ is the purpose of actuators in IoT systems. a) To collect sensor data only b) To replace cloud servers c) To perform physical actions based on commands d) To reduce communication speed	1	K2	CO1
3.	A manufacturing company installs IoT sensors to predict machine failures before breakdowns occur. Which business benefit is achieved? a) Predictive maintenance b) Increased manual inspection c) Reduced automation d) Elimination of data collection	1	K3	CO1
4.	____ is the primary function of the sensing unit in an IoT node. a) Network routing b) Data acquisition from the physical environment d) Power regulation d) Data encryption only	1	K1	CO2
5.	An IoT healthcare system stores patient sensor data online for remote monitoring and analytics. Which technology is applied? a) Local Typewriter System b) Offline Storage Register c) Standalone Calculator d) Cloud Computing	1	K3	CO2
6.	Choose the protocol widely used for short-range IoT communication. a) Bluetooth b) SMTP c) HTTP server d) Compiler protocol	1	K2	CO2
7.	____ is the main function of NFC technology in IoT applications. a) Optical signal transmission. b) Long-distance satellite communication c) Short-range secure communication d) Industrial power control	1	K1	CO3
8.	Select the important application of UniPro protocol. a) Wireless internet broadcasting b) Interconnecting high-speed mobile subsystems a) Satellite communication d) Mechanical device synchronization	1	K2	CO3
9.	A smart home requires low-power wireless communication between devices over short distances. Which protocol should be selected? a) GSM b) Zigbee c) LTE d) CDMA	1	K3	CO3
10.	Recall the primary purpose of data visualization in IoT. a) Presenting complex data in graphical form b) Replacing sensors c) Eliminating cloud computing d) Increasing hardware size	1	K1	CO4

11.	____ is a function of prescriptive analytics which is used in decision-making. a) Eliminating artificial intelligence b) Increasing hardware complexity c) Suggesting actions based on analyzed data d) Replacing IoT gateways	*1*	*K2*	*CO4*
12.	A smart agriculture system requires communication among hundreds of low-power sensor nodes. Which technology is most appropriate? a) Preventing cloud integration b) Reducing system scalability c) Eliminating analytics tools d) Supporting accurate and efficient operational decisions	*1*	*K3*	*CO4*
13.	Identify the role of IoT in smart city applications. a) Improving urban infrastructure and services b) Replacing communication networks c) Eliminating transportation systems d) Preventing automation	*1*	*K1*	*CO5*
14.	Why is security essential in IoT applications? a) To increase power consumption b) To reduce connectivity c) To protect sensitive data and devices d) To avoid analytics	*1*	*K2*	*CO5*
15.	An electricity provider uses sensors and smart meters to monitor power usage in real time. Which IoT application is being implemented? a) Environment Monitoring b) Home Automation c) Smart Irrigation d) Smart Grid	*1*	*K3*	*CO6*
16.	A city administration installs smart traffic lights to reduce congestion. This is an example of ____. a) Smart Agriculture b) Electric Vehicle Charging c) Smart City Application d) Productivity Application	*1*	*K3*	*CO6*

PART – A (ii) (Short Answer Questions)
(6 × 3 = 18 Marks)
Answer ALL Questions

17.	Demonstrate how the sensing and processing units work together in an IoT node.	*3*	*K3*	*CO1*
18.	Illustrate the working principle of Near Field Communication and RFID technologies in IoT applications.	*3*	*K3*	*CO2*
19.	Analyze how RFID can be used for object tracking systems.	*3*	*K4*	*CO3*
20.	Examine how 6LoWPAN supports efficient IPv6 communication in resource-constrained IoT networks.	*3*	*K4*	*CO4*
21.	Make use of data visualization to explain how it helps in decision making in IoT environments.	*3*	*K3*	*CO5*
22.	Analyze how smart traffic management systems reduce congestion in cities.	*3*	*K4*	*CO6*

PART - B (Descriptive Answer Questions)
(6 × 11 = 66 Marks)
Answer ALL Questions

23.	a)	Illustrate the structure and working of an IoT node including sensing, processing, communication, and power units.	*11*	*K3*	*CO1*
		OR			
	b)	Design the layer / stack architecture of IoT and explain the function of each layer.	*11*	*K3*	*CO1*
24.	a)	Illustrate how GSM supports IoT communication in remote monitoring systems with an example.	*11*	*K3*	*CO2*
		OR			
	b)	Demonstrate how Zigbee and Bluetooth technologies are deployed for short-range IoT communication networks with an example.	*11*	*K3*	*CO2*

25.	a)	Make use of RFID technology to demonstrate how it is deployed for asset tracking and inventory management applications.	*11*	*K3*	*CO3*
		OR			
	b)	Illustrate the operational process of NFC and RFID technologies in IoT networks.	*11*	*K3*	*CO3*
26.	a)	Demonstrate how Bluetooth Smart can be used in healthcare monitoring applications.	*11*	*K3*	*CO4*
		OR			
	b)	Determine the suitability of WiFi technology for smart city IoT applications.	*11*	*K3*	*CO4*
27.	a)	Infer the relationship between Business Intelligence and Artificial Intelligence in IoT-based decision making systems and explain in detail.	*11*	*K4*	*CO5*
		OR			
	b)	Analyze the framework for data-driven decision making in IoT and evaluate its importance in modern industries.	*11*	*K4*	*CO5*
28.	a)	Analyse the importance of IoT in electric vehicle (EV) charging systems and discuss the challenges involved.	*11*	*K4*	*CO6*
		OR			
	b)	Discuss the role of IoT in Smart Agriculture and Productivity Applications. Analyze how these technologies improve efficiency, resource utilization, and productivity.	*11*	*K4*	*CO6*