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GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR

(GIET UNIVERSITY)

Ph.D. (First Semester-Winter) Examinations, June – 2025

23WPPEEC1014 – Internet of Things and Applications

(ECE)

Time: 3 hrs Maximum: 70 Marks

The figures in the right hand margin indicate marks.

Answer *ANY FIVE* Questions. **(14 x 5 = 70 Marks)** **Marks**

1.a.	Define Machine-to-Machine (M2M) communication and peer networking in IoT. Provide examples of applications where M2M communication is essential	8
b.	Discuss the concept of "Fractal Cities" and how it relates to the evolution of urban infrastructure in the IoT era. Provide examples of how IoT technologies can enhance city planning and management.	6
2.	Compare and contrast the features and differences between IPv4 and IPv6 in the context of IoT. Discuss the advantages and challenges of adopting IPv6 for IoT applications	14
3.a.	Analyze the security and privacy considerations in Fog computing for IoT. What are the key challenges and strategies to ensure data security and user privacy in Fog-based IoT applications?	7
b.	Explain the importance of modular design and abstraction in IoT systems. How can these principles enhance the scalability and flexibility of IoT solutions	7
4.	Discuss the various protocols used to support IoT communications. How do these protocols facilitate seamless data exchange in IoT ecosystems?	14
5.a.	Discuss the challenges and opportunities of client-side control in IoT, including user-friendly interfaces and remote device management.	7
b.	Describe client-side control and configuration in IoT devices. How can end-users effectively manage and configure IoT devices for personalized applications?	7
6.a.	Compare and contrast the operating systems mbed, RIoT, and Contiki in the context of IoT. How do these operating systems meet the specific requirements of IoT environments?	7
b.	Provide insights into the ethical and privacy concerns associated with IoT.	7
7.	How can IoT developers and policymakers balance the benefits of IoT with protecting individual rights and data privacy?	14
8.a.	Discuss the security and legal considerations in IoT applications. How does the Information Technology (IT) Act of 2000 address IoT-related legal issues, and what is the scope for additional IoT legislation?	7
b.	Analyze the applications of IoT in the healthcare sector. How does IoT technology support remote patient monitoring, medical device integration, and healthcare data analytics?	7

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