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Total No. of Questions: [09]

B. Tech. (EE) (Semester – 8th)

INTERNET OF THINGS

Subject Code: BCSEO1012

Paper ID: [18OE111518]

Time: 03 Hours **Maximum Marks: 60**

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A **(2 marks each)**

Q1. Attempt the following:

a) Define IoT (Internet of Things) and explain its significance in the modern technological landscape.
b) Differentiate between an embedded device and an IoT device, highlighting their key characteristics.
c) List and briefly explain the properties of IoT devices that distinguish them from traditional devices.
d) Explain the concept of the IoT ecosystem and discuss its components.
e) What is an IoT decision framework, and how does it help organizations in IoT implementation?
f) Discuss the key components of IoT solution architecture models.
g) Name some major IoT boards available in the market and briefly describe their features.
h) Identify and discuss privacy issues associated with IoT deployments.

Section – B **(5 marks each)**

Q2. Explain the process of setting up a Raspberry Pi for IoT applications, highlighting the steps involved.

Q3. Compare and contrast different communication protocols used in IoT, focusing on their strengths and weaknesses.

Q4. Discuss the types of wireless communication used in IoT, and provide examples of short-range and long-range wireless communication devices with their properties.

Q5. Explore the applications of various sensors in IoT, taking examples such as Google Maps and Ola, and explain their roles in IoT solutions.

Q6. Analyze the significance of IoT data link layer and network layer protocols in enabling seamless communication among IoT devices, discussing their functionalities and implementations.

Section – C **(10 marks each)**

Q7. Explore the role of positioning sensors such as encoders, accelerometers, and GPS in IoT applications, providing real-world examples to illustrate their importance.

Q8. Evaluate the challenges and opportunities associated with image sensors like cameras in IoT deployments, considering factors such as data privacy, image processing, and real-time analytics.

Q9. Discuss the implications of integrating IoT technologies with global positioning systems (GPS) for various industries, highlighting potential benefits and limitations in navigation, tracking, and location-based services.