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Total No. of Questions: [09]

Total No. of Printed Pages: 1

**B. Tech. (EE) (Semester – 8<sup>th</sup>)**  
**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.