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PRESIDENCY UNIVERSITY BENGALURU

 **SET-B**

SCHOOL OF ENGINEERING

**END TERM EXAMINATION – MAY/JUNE 2024**

**Semester :** Semester VI - 2021

**Course Code :** ECE3076

**Course Name :** IOT Platforms and Application Development

**Program :** B.Tech.

**Date :** June 10, 2024

**Time :** 1:00 PM - 4:00 PM

**Max Marks :** 100

**Weightage :** 50%

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Question paper consists of 3 parts.*
3. *Scientific and non-programmable calculator are permitted.*
4. *Do not write any information on the question paper other than Roll Number.*

**PART A**

**ANSWER ANY THREE QUESTIONS (3 Q X 5 M = 15 M)**

* 1. A communication model consist of the data producers push the data to queues and the consumers pull the data from the queues. Producers do not need to be aware of the consumers. Identify the communication model.

(CO1) [Knowledge]

* 1. The Information Technology (IT) and Operational Technology (OT) responsibilities represent office- based technology vs plant floor technology respectively. Classify the functions query-based, event- based, real-time, data-in-motion, and data-at-rest as applicable to IT and OT responsibilities.

(CO1) [Knowledge]

* 1. Depending on the storage class data is stored in various segments. List the segments to store Program code, initialized global variables, uninitialized global variables, local variables, dynamically allocated variables.

(CO2) [Knowledge]

* 1. Physical link layer is the physical connecting medium. List the various protocols commonly used in the link layer.

(CO3) [Knowledge]

* 1. The Simplified IoT architecture framework describes the data management and compute stack consisting of three layers Cloud, Fog and Edge computing as deployment principles applied to industry use cases. Categorise the characteristics Virtually unlimited storage, Connects IoT device in real-time, Reduce network bandwidth, Reduce latency, and Big data analysis as relevant to Cloud, Fog and Edge computing.

(CO4) [Knowledge]

**PART B**

**ANSWER ANY TWO QUESTIONS (2 Q X 20 M = 40 M)**

* 1. To deploy a food delivery IoT application it is essential to know the suitable cloud deployment models. Describe the cloud deployment model categories.

(CO4) [Comprehension]

* 1. The design of the BMTC logistic IoT application that updates the location of the buses on different routes uses for connectivity the TCP/IP model involving various protocols. Describe the IoT protocols at each layer in the TCP/IP model.

(CO3) [Comprehension]

* 1. The design of IoT network for a voice enabled cleaning robot using the fundamental building blocks of the Simplified IoT Architecture. Explain the two parallel stacks in the Simplified IoT Architecture.

(CO2) [Comprehension]

**PART C**

**ANSWER ANY THREE QUESTIONS (3 Q X 15 M = 45 M)**

* 1. A navigation system is to be deployed comprising of numerous functional blocks represented by logical design. Describe the functional blocks in the logical design of the navigation system.

(CO1) [Application]

* 1. A smart classroom IoT application is to be deployed consisting of multi node, using cloud storage and analysis. Describe suitable IoT deployment level for the smart classroom application.

(CO2) [Application]

* 1. Fog computing is essential and useful for time-sensitive applications. Discuss three application areas of fog computing

(CO3) [Application]

* 1. A Students Information System is deployed in University. Cloud services provider owns and operates data storage capacity by maintaining large data centers in multiple locations around the world. Describe the three main cloud storage types.

(CO4) [Application]