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PRESIDENCY UNIVERSITY BENGALURU

SCHOOL OF ENGINEERING

**MAKE UP EXAMINATION – JULY 2024**

**Semester : 4**

**Course Code :** ECE3075

**Course Name :**  IoT Architecture and Protocols

**Program :** B.Tech. Electronics and Communication Engineering

**Date :** 18-07-2024

**Time :** 9.30AM - 12.30PM

# 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 ALL THE QUESTIONS (5 X 4 = 20M)**

1. It is known that the Google Cloud has an end-to-end platform for Internet-of-Things solutions. Define Google Cloud and mentions its application in IoT.

(CO3) [Knowledge]

1. The purpose of weather monitoring system is to collect data on environmental conditions. With a simple diagram define process specification and domain model used in weather monitoring system.

(CO4) [Knowledge]

1. IoT-based technology offers advanced levels of services and practically change the way people lead their daily lives. Advancements in medicine, power, gene therapies, agriculture, smart cities, and smart homes are just a very few of the categorical examples where IoT is strongly established. How would

you best describe IoT? Why IoT has gained so much buzz in the recent years? (CO1) [Knowledge]

1. The purpose of weather monitoring system is to collect data on environmental conditions. With a simple diagram define process specification and domain model used in Weather Monitoring System.

(CO2) [Knowledge]

1. IPV4 and IPv6 are the protocol which helps to identify the devices on the internet network. Which is the layer these protocol are applicable. Explain their structure.

(CO3) [Knowledge]

**PART B**

**ANSWER ALL THE QUESTIONS (4 X 15 = 60M)**

1. IoT architecture elements vary based on applications of use. Based on this fact, various deployment levels are defined for an IoT system. Consider an air conditioner

whose temperature has to be monitored continuously. Demonstrate the application of temperature monitoring in an air conditioner with all the IoT deployment levels in the IoT system.

(CO1) [Comprehension]

1. Edge computing and Cloud comuting are the two methods where there is trade between the customers. List the parameters that will help customer to understand what is basic difference between these two mdels. As new company which model will be suitable to me edge computing or fog computing.

(CO4) [Comprehension]

1. The primary hardware components that make up an Embedded system are Sensors,

ADC and DAC, Processor, Memory and Actuator. With this information explain an Embedded system

of IoT devices.

(CO2) [Comprehension]

1. The communication between physical layer and cloud services involve technologies Ethernet, wifi,

NFC, Bluetooth, LPWAN, Zigbee and Cellular networks. Contrast between different technologies with brief description.

(CO3) [Comprehension]

**PART C**

**ANSWER ALL THE QUESTIONS (2 X 10 = 20M)**

1. A weather monitoring system is designed to monitor temp, humidity and wind, and all other parameters that can help farmers to take appropriate decisions for the season. As IoT Designer draw a deyoploment model for weather monitering system. Identify the various nodes and explain. How cliud based app can help to show the various parameters.

(CO1) [Application]

1. A biometric attendance system is required to be implemented across the campus of the university using the star, mesh, and peer-to-peer topologies. Formulate briefly describing the

suitable topology for long range, medium range and short range.

(CO4) [Application]