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**PRESIDENCY UNIVERSITY
BENGALURU**

**SCHOOL OF ENGINEERING
MID TERM EXAMINATION - OCT 2023**

Semester : Semester V - 2021

Course Code : ECE3075

Course Name : Sem V - ECE3075 - IoT Architecture and Protocols

Program : B. TECH

Date : 30-OCT-2023

Time : 2:00PM - 3:30PM

Max Marks : 50

Weightage : 25%

Instructions:

- (i) Read all questions carefully and answer accordingly.
 - (ii) Question paper consists of 3 parts.
 - (iii) Scientific and non-programmable calculator are permitted.
 - (iv) Do not write any information on the question paper other than Roll Number.
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PART A

ANSWER ALL THE QUESTIONS

(5 X 2 = 10M)

1. A low cost, single node, local storage IoT system is to be deployed for monitoring entrance gate of warehouse. Describe the IoT deployment level suited for such system.
(CO1) [Knowledge]
2. IoT finds use in varied applications. List any two such applications.
(CO1) [Knowledge]
3. Gateway provides a bridge between different communication technologies. List any two Key functionalities of IoT Gateway
(CO1) [Knowledge]
4. Machine to machine (M2M) involves sensor communicating, structures tracking, and automatically responding to the surroundings, with reduced human involvement. List two differences between M2M and IoT.
(CO2) [Knowledge]
5. The Analog-to-Digital converter (ADC) in ESP32 is a 12 bit ADC and $V_{ref} = 3.3V$. Compute the resolution of the ADC.
(CO2) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS

(2 X 10 = 20M)

6. An IoT device may consist of several interfaces for connections to other devices, both wired and wireless. Describe with suitable diagram the Generic blocks of an IoT Device.
(CO1) [Comprehension]

7. Industrial production networks and office networks differ in several ways with specific requirements in IOT ecosystems for communication, exchange of data between Operational Technology (OT) and Information Technology (IT). Discuss OT and IT system in Internet of Things systems.

(CO2) [Comprehension]

PART C

ANSWER THE FOLLOWING QUESTION

(1 X 20 = 20M)

8. An Air Pollution monitoring system is to be designed to enable authorities monitor the air quality. Specify with description and diagram all the communication model that are applicable to devise such system.

(CO1) [Application]