

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- MARCH-2023

COURSE CODE(CREDITS): 21M1WEC236(3)

MAX. MARKS: 15

COURSE NAME: Smart Internet of Things

COURSE INSTRUCTORS: Dr. Shweta Pandit

MAX. TIME: 1 Hour

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*Note: All questions are compulsory. Marks are indicated against each question in square brackets.*

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**Q1. a)** With the help of proper diagrammatic representation, explain IoT stack with appropriate examples for each layer. [3][CO1]

**b)** What is an 8051 microcontroller, and how is it different from other microcontrollers?

[2][CO1]

**Q2 a)** Design a system which interface the heartbeat sensor with Arduino UNO board. Mention clearly the working principle of heartbeat sensor and about its pins. [3][CO2][CO3]

**b)** What are the benefits of using an ARM processor in IoT devices?

[2][CO1]

**Q3. a)** Design a system that uses a humidity sensor to control the operation of a greenhouse. The system should turn on a watering system when the humidity falls below a certain threshold and turn it off when the humidity rises above that threshold. Use an Arduino microcontroller for this application. [3][CO2][CO3]

**b)** What is the difference between an accelerometer and a gyroscope sensor?

[2][CO1]