Roll No. _____

Pandit Deendayal Energy University

School of Technology

Mid Semester Examination

B. Tech. (Computer Science and Engineering)

Semester – VII

Date: 12/09/2023

Course Name : Internet of Things
Time: 2 hours

Course Code : 23CP403T
Max. Marks: 50

Instructions:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever essential and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics wherever required is an integral part of the answer.

Question No.	Description	Marks	Course Outcomes (CO's)
1	Compare the M2M model with the IoT environment.	5	CO1
2	Draw and explain the architectural framework for smartwatch based patient monitoring system.	5	CO1
3	Distinguish between the Internet of Things and Wireless Sensor Networks using suitable examples.	5	CO1
4	Illustrate the Edge Computing applicability in an IoT environment.	5	CO2
5	State various challenges associated with the deployment of IoT devices.	5	CO2
6	Explain the following entities of IP V6 header in brief. a. Flow Label b. Traffic Class	4	CO4
7	Outline various Quality of Services provided by MQTT.	3	CO4
8	In an IoT network, a TCP sender transmits a data payload of 15,000 bytes. The network's Maximum Transmission Unit (MTU) varies across the network, with segments having MTUs of 1,200, 1,400, and 1,600 bytes at different hops. Calculate the number of segments created, and determine the size of each segment.	5	CO4
9	Consider two MQTT clients, Host A (Publisher) and Host B (Subscriber), interacting with each other using an intermediate broker. At t=0, Host B established a connection with the broker. At t=2, Host A also established a connection with the broker. Publisher publish the data based on the topic temperature at t=3 (20^oC) and t=7 (23^oC). After sending this data at the corresponding time, the publisher disconnects the connection with the broker at t=9. The publisher and subscriber need to keep updating broker about their presence in the network at each time interval. Assume that the data and acknowledgment	8	CO4

	transmission between the clients and broker are instantaneous. Create a state transition diagram for the above scenario till t=11 with QoS level 2.		
10	Describe the various messages for communication used in COAP.	5	CO4