UPES
End Semester Examination, May 2024

Course: IoT for industries   Semester: 8
Program: B.Tech. (CS-IoT)
Time: 03 hrs.
Course Code: CSIS4004P   Max. Marks: 100
Instructions: Attempt every questions.

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Describe basic building blocks of an IoT device. Provide a block diagram.	4	CO1
Q 2	Illustrate Raspberry Pi Interfaces with appropriate system perspective.	4	CO3
Q 3	Describe WAMP with examples and diagrams.	4	CO2
Q 4	Describe the utility of Hadoop and Map-reduce in the context of IoT.	4	CO4
Q 5	Enumerate the differences and similarities between Hadoop's Mapreduce and YARN. Provide details of their impact IoT.	4	CO1

SECTION B
(4Qx10M= 40 Marks)

Q 6	Provide a detailed map of IoT protocol ecosystem, layer-wise. Draw the appropriate layers and verticals to demonstrate their utility.	10	CO4
Q 7	Describe the details of IoT hardware of all three types. Provide a comparative study among them about their similarities and differences.	10	CO2
Q 8	Draw the seven layer model of IoT as proposed by Prof. Raj Jain. Describe its relevance.	10	CO4
Q 9	Enumerate the power consumption per MB as outlined by Raj Jain for different protocols like 802.11b, 802.15.3 etc.	10	C04

	OR Design an IoT system for a possible health care scenario. Make appropriate assumptions.		
SECTION-C **(2Qx20M=40 Marks)**			
Q 10	Illustrate two networking layer protocols for IoT. Enumerate the way they bridge the addressing gap with IPv6. Or Describe the reasons behind development of lower power and lossy network protocols. Do the newly developed protocols cope-up with the challenges they were designed for? Describe detailed case studies with them.	**20**	**CO5**
Q 11	Explain MQTT in detail along with topics, pub/sub mechanism, QoS levels, Sessions, use cases, and its comparative study with HTTP. Describe a detailed case study from real life where MQTT is useful.	**20**	**CO2**