Sub Code: OET 301 **ROLL NO……..……..**

2nd SEMESTER EXAMINATION, 2022–23

Ist yr M.Tech. – Computer Science & Eng

IoT and its Applications

Duration: 3:00 hrs **Max Marks: 100**

Note: - Attempt all questions. All Questions carry equal marks. In case of any ambiguity or missing data, the same may be assumed and state the assumption made in the answer.

Q 1.	Answer any four parts of the following. a) Discuss historical evolution of Internet of Things. Also present an analysis on the impact of IoT Technologies. b) What are the major challenges before IoT Industry and how these challenges can be overcome in near future? c) Write short critical note on convergence of IT and OT. d) Give a comparative analysis of IPv4 and IPv6. e) What are the different types of sensors used in IoT applications? f) Define smart objects and explain how Sensors and Actuators are helpful in transforming ordinary things into smart objects.	5x4=20
Q 2.	Answer any four parts of the following. a) What are the main features of IoT World Forum (IoTWF) Standardized Architecture? Briefly explain functions of each layer. b) What do you understand by M2M communication? c) Give a comparative analysis of different IoT Communication Technologies. d) Identify key differences between IoT and IIoT? e) Write a critical review on 6LoWPAN and its role in IoT applications. f) Explain the role of Adaptation Layer in 6LoWPAN IoT architecture. Also discuss optimization of IP for IoT.	5x4=20
Q 3.	Answer any two parts of the following. a) With the help of a functional block diagram explain the working principle of a embedded sensing systems. b) Explain the message format for COAP and MQTT Protocols. c) Write down the steps for connecting sensors and actuators with an Arduino Board.	10x2= 20
Q 4.	Answer any two parts of the following. a) What is Raspberry Pi and how it is useful for IoT applications? b) Briefly explain the process of integrating sensors and actuators with any of the IoT embedded sensing board. c) Elaborate the role of Cloud, Fog and Edge Computing in IoT and how it helps in the process of data analytics?	10x2= 20
Q 5.	Answer any two parts of the following. a) How smart agriculture systems can help in reducing the emission of the green house gases from the farm fields. b) Explain the Smart City IoT Architecture. Also elaborate the role of cloud for smart city applications. c) What are the key features of the holistic approach to industrial security in the era of Industry 4.0?	10x2= 20

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