Name: **Enrolment No:**	

UPES

End Semester Examination, May 2023

Course: Sensors, Instrumentation and WSN **Semester : VI**

Program: BTech CSE minor in IoT **Time : 03 hrs.**

Course Code: CSIS3013P **Max. Marks: 100**

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q1	Draw the diagram with range and bandwidth as the axes and highlighting the place of WiFi, cellular and LoRa technologies.	**4**	**CO1**
Q2	Explain in brief any four types of response codes used in CoAP messages.	**4**	**CO2**
Q3	Name the four constraints for the RESTful architecture.	**4**	**CO2**
Q4	Write the Arduino code to print on the serial monitor the moving average of latest 5 temperature reading (@1Hz) using DHT11 sensor.	**4**	**CO1**
Q5	Draw the pin connection diagram of ADXL345 sensor with Arduino Uno.	**4**	**CO2**
SECTION B **(4Qx10M= 40 Marks)**			
Q6	Review and write about the application, session and the network layers protocols in IoT architecture.	**10**	**CO3**
Q7	Describe the salient features of the LoRaWAN and how different classes of the protocol can be utilized for various purposes.	**10**	**CO3**
Q8	Illustrate the working of any two IoT protocols which work on the session layer.	**10**	**CO4**
Q9	Draw the protocol stack of ZigBee Technologies. OR With the help of diagrams, explain how the topology in ZigBee can be used for wider network coverage.	**10**	**CO2**
SECTION-C **(2Qx20M=40 Marks)**			
Q10	Discuss in detail the steps required for connecting NodeMCU with the DynamoDB of AWS IoT Cloud.	**20**	**CO4**
Q11	With the help of radio spectrum diagram, discuss about any four commonly used wireless technologies for data communication. OR With the help of the Electromagnetic spectrum diagram, discuss the application areas of any four commonly used frequency bands.	**20**	**CO3**