Name: Enrolment No:	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, May 2020

Course: Wireless Sensor Network and IoT Standards **Semester: VI**
Program: B. Tech. ECRA/CCVT/OSSOS/MAD **Time 03 hrs.**
Course Code: CSIS 3001 **Max. Marks: 100**

SECTION A

1. **Each Question will carry 5 Marks**
2. **Instruction: Complete the statement / Select the correct answer(s)**

S. No.	Question	CO
Q1	What are the four major characteristics of the Wireless Ad hoc Networks?	**CO1**
Q2	Differentiate Ultra and Narrow band signals.	**CO2**
Q3	How the Operating System of WSN is different from general OS? List out four such OS used in WSN.	**CO1**
Q4	What do you know about Frequency Hopping Spread Spectrum?	**CO2**
Q5	Describe the various challenges for the design of an energy-efficient MAC.	**CO2**
Q6	Describe the following routing protocols categories with suitable examples of routing protocols under that category: a. Data-centric routing protocol b. Query-based routing protocol	**CO3**

SECTION B

1. **Each question will carry 10 marks**
2. **Instruction: Write short / brief notes**

Q 1	Describe the IoT protocol suite along with the functionality of each layer.	**CO4**
Q 2	RFID is one of the electromagnetics technology used in the IoT devices. Explain in its working in detail.	**CO4**
Q 3	Discuss your understanding of the hidden terminal problem and exposed terminal problems using suitable diagrams. How it degrades the performance of WSN?	**CO2**
Q 4	CoAP protocol is designed for resource constraint devices. Explain the working of CoAP protocol	**CO3**

Q 5	How IoT is beneficial in our daily life? What are the challenges in its deployment? Give detail of IoT usage in the following applications: a. Smart agriculture b. Obstacle monitoring	**CO4**
Section C **1. Each Question carries 20 Marks.** **2. Instruction: Write long answer.**		
Q1	a. Explain the functioning of SPIN protocol along with its types in detail. **<u>OR</u>** What are the Reactive routing protocols? Explain the working of AODV protocols in detail. b. Explain any of the following **<u>two</u>** with diagram: i. DSSS ii. MQTT iii. Rumer routing protocol iv. IEEE 802.15 WPAN	**CO3**