

<b>Name:</b>	 <b>UPES</b> UNIVERSITY WITH A PURPOSE
<b>Enrolment No:</b>	

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

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

**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	<p>How IoT is beneficial in our daily life? What are the challenges in its deployment? Give detail of IoT usage in the following applications:</p> <ol style="list-style-type: none"> <li>a. Smart agriculture</li> <li>b. Obstacle monitoring</li> </ol>	CO4
<p><b>Section C</b></p> <ol style="list-style-type: none"> <li>1. Each Question carries 20 Marks.</li> <li>2. Instruction: Write long answer.</li> </ol>		
Q1	<ol style="list-style-type: none"> <li>a. Explain the functioning of SPIN protocol along with its types in detail.</li> </ol> <p style="text-align: center;"><b><u>OR</u></b></p> <p>What are the Reactive routing protocols? Explain the working of AODV protocols in detail.</p> <ol style="list-style-type: none"> <li>b. Explain any of the following <b><u>two</u></b> with diagram: <ol style="list-style-type: none"> <li>i. DSSS</li> <li>ii. MQTT</li> <li>iii. Rumer routing protocol</li> <li>iv. IEEE 802.15 WPAN</li> </ol> </li> </ol>	CO3