Name: Enrolment No:	**U** UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Course: Wireless Sensor Networks & IoT Standards **Semester: 5th**
Program: B.Tech. (CSE spl IoTSC) **Time 03 hrs.**
Course Code: CSEG368 **Max. Marks: 100**

Instructions: All questions are compulsory. This question paper contains 12 questions.

	SECTION A		
S. No.		**Marks**	**CO**
Q 1	Compare and contrast WSN standards of 802.11 & 802.15.	**4**	**CO1**
Q 2	Compare, contrast and discuss Source coding and Channel coding in WSN.	**4**	**CO2**
Q 3	Compare and contrast HTTP & CoAP.	**4**	**CO3**
Q 4	Discuss a simulator by giving its benefits.	**4**	**CO4**
Q 5	Differentiate between ordinary and binary sensors.	**4**	**CO4**
	SECTION B		
Q 6	Discuss different components of a Wireless Sensor Node? Explain the need and operations of different components by giving emphasis on transducers and micro-controller.	**8**	**CO1**
Q 7	Compare, discuss and contrast TinyOS and Contiki OS for WSN.	**8**	**CO1**
Q 8	Draw and discuss EM spectrum in detail. Why every bandwidth can not be used for communication purpose? Which set of bandwidths are used for communication purpose and why? How much bandwidth one TV channel consumes for HD and non-HD pattern? How much bandwidth has been allocated to FM radio in India?	**8**	**CO2**
Q 9	Draw and briefly discuss a 2D graph comparing Throughput versus Load for different MAC layer protocols like pure Aloha, slotted Aloha, persistent CSMA, non-persistent CSMA, CSMA/CD. OR Discuss two contention based protocols at the MAC for WSN.	**8**	**CO2**
Q 10	Discuss different features of IPv4 and IPv6 by giving major differences between the two. Explain CoAP in detail. OR Explain different components of a Qualnet.	**8**	**CO3**
	SECTION-C		
Q 11	Discuss in detail either building automation applications of WSN or smart agriculture applications of WSN.	**20**	**CO3**
Q 12	Write down necessary steps in detail for creating a sensor network. Choose your own application for the same. OR Explain hierarchical protocols? Describe and discuss in detail two of the following hierarchical based protocols: LEACH/PEGASIS/TEEN.	**20**	**CO4**