UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2018

Programme Name: B.Tech.(CSE spl IoTSC)   **Semester** : 5ᵗʰ
Course Name   : **Wireless Sensor Networks & IoT Standards**   **Time**   : 03 hrs
Course Code   : **CSEG368**   **Max. Marks : 100**
Nos. of page(s)   : **One**
Instructions: **All questions are compulsory. This question paper contains 11 questions.**

SECTION A

S. No.		Marks	CO
Q 1	What are different verticals of IoT?	4	CO4
Q 2	Differentiate between ordinary and binary sensors.	4	CO4
Q 3	Explain a simulator by giving different types of simulators.	4	CO3
Q 4	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.	4	CO2
Q 5	Compare and contrast HTTP & CoAP.	4	CO3

SECTION B

Q 6	Compare, contrast and discuss Source coding and Channel coding in WSN.	10	CO1
Q 7	What was the need for a migration from IPv4 to IPv6. Compare and contrast IPv4 and IPv6. Discuss 6LoWPAN in case of Wireless Sensor Network.	10	CO2
Q 8	Create a scenario for Health Monitoring System in Qualnet using WSN and Wi-Fi technologies.	10	CO3
Q 9	Draw and discuss architecture of Qualnet. OR Discuss CoAP security. What different security modes are available in CoAP?	10	CO4

SECTION-C

Q 10	As an IoT engineer discuss how Wireless Sensor Network can do a tremendous job for making our lives an easy and automated one in the field of Smart cities (civil engineering).	20	CO4
Q 11	What are hierarchical protocols? Describe and discuss in detail one of the following hierarchical based protocols: LEACH/PEGASIS/TEEN. OR Discuss in detail either building automation applications of WSN or smart agriculture applications of WSN.	20	CO3

Name of Examination (Please tick, symbol is given)	:	MID	NA	END	ᴱ	SUPPLE	NA
Name of the School (Please tick, symbol is given)	:	SOE		SOCS	ᴱ	SOP	
Programme	:	B.Tech. (CSE spl IoTSC)					
Semester	:	5th					
Name of the Course	:	Wireless Sensor Networks & IoT Standards					
Course Code	:	CSEG368					
Name of Question Paper Setter	:	Alok Aggarwal					
Employee Code	:	40001740					
Mobile & Extension	:	7906230838 & 1734 (not working)					

Note: Please mention additional Stationery to be provided, during examination such as Table/Graph Sheet etc. else mention "NOT APPLICABLE": NOT APPLICABLE

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Date of Examination	:	
Time of Examination	:	
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Note: - Pl. start your question paper from next page

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	SECTION A		
S. No.		**Marks**	**CO**
Q 1	Discuss in brief the IoT horizontal architecture.	**4**	**CO4**
Q 2	What are different sensor types?	**4**	**CO4**
Q 3	What is Data Encoding? For what purpose it is used? What are different Encoding types in WSN?	**4**	**CO2**
Q 4	Discuss a simulator by giving its benefits.	**4**	**CO3**
Q 5	Discuss different applications of Wireless Sensor Network.	**4**	**CO3**
	SECTION B		
Q 6	Discuss different features of IPv4 and IPv6 by giving major differences between the two. Explain 6LoWPAN in detail.	**10**	**CO3**
Q 7	Create a scenario for Habitat Monitoring System in Qualnet using WSN technology.	**10**	**CO4**
Q 8	What are different components of a Wireless Sensor Node? Explain the need and operations of different components by giving emphasis on transducers and micro-controller.	**10**	**CO1**
Q 9	What are the different components of a Qualnet. OR Give a classification of different routing protocols in IoT and WSN.	**10**	**CO4**
	SECTION-C		
Q 10	As an IoT engineer discuss how Wireless Sensor Network can do a tremendous job for making our lives an easy and automated one in the field of agriculture.	**20**	**CO3**
Q 11	What are data centric and Flat based routing protocols? Explain in detail either Flooding or Gossiping. OR Discuss in detail IPv6 by giving its different features, transition, addressing and routing.	**20**	**CO4**