UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, July 2020

Programme Name: B TECH (CSE+IOT&SC) Semester : 8th
Course Name   : Designer of Smart Cities Time   : 03 hrs
Course Code   : CSEG 479 Max. Marks : 100
Nos. of page(s) : 2
Instructions   : Attempt all 12 questions. All questions are compulsory.

SECTION A

S. No.		Marks	CO
Q 1	(i) The Smart city concept integrates _____, and various physical devices connected to the IoT network to _____ the efficiency of city operations and services and connect to citizens. A. ICT & Optimize B. IT & Optimize C. ICT & Maximize D. IT & Maximize (ii) "Smart Cities Mission" was launched by Prime Minister of India on which date: A. 25 June 2016 B. 25 June 2015 C. 25 June 2014 D. 25 June 2017 (iii) The smart cities initiative has been launched in how many cities in India. A. 10 B. 100 C. 500 D. 1000 (iv) Define and discuss the term "Smart cities" as defined in PAS 180: 2014 Smart Cities Vocabulary.	1+1 +1+ 2=5	CO1
Q 2	(i) Lighting can be turned _____with a building automation or lighting control system based on time of day, or on occupancy sensor, photo-sensors and timers. A. On B. Off C. Dimmed D. On, Off, or Dimmed (ii) A domestic robot is a type of service robot, an autonomous robot that is primarily used for: A. Household chores B. Education C. Entertainment/therapy D. All above (iii) In a Home Automation system, *Controller* acts as:	1+1 +1+ 1+1 =5	CO2

A. The Brain of the System
B. The Sensory Organs of the Home
C. How the Internal Communication Occurs
D. Get Notified Instantly

(iv) In a Building Automation System, an air conditioning system, or a standalone air conditioner, provides _____ for all or part of a building.

A. Cooling Control
B. Humidity
C. Cooling and humidity control
D. None of the above

(v) The chilled water system in a Building Automation System (BAS) will have:

A. Chillers
B. Pumps
C. Both A and B
D. None of the above

Q 3	Name and discuss briefly the disadvantage of existing ongoing system of non-IoT based Smart Street Light System.	**5**	**CO3**
Q 4	As an IoT engineer what parameters you would consider for making Smart City Project a successful one.	**5**	**CO3**
Q 5	Give basic hardware and software requirements for having a Traffic Control using Internet of Things.	**5**	**CO4**
Q 6	How IoT applications in waste management are improving the scenario by giving sanitation workers insight into the actual fill level of various disposal units?	**5**	**CO4**
	SECTION B		
Q 7	Critically comment over the major cities in the world which started the Smart City project firstly in terms of primary focus areas, technology used and achievable that they achieved as of now.	**10**	**CO1**
Q 8	Critically comment over the "100 Smart Cities Mission" launched by Govt. of India few years back. Comment over the progress held by now in any two cities of India.	**10**	**CO1**
Q 9	As an IoT engineer how would you go for Home Automation using IoT project. Give hardware and software requirements of your project. Explain in details the necessary steps for the above project along with cost considerations.	**10**	**CO2**
Q 10	How IoT will play an important role in Traffic Management for Smart Cities? Give a case study in support of your answer. Give hardware and software requirements of your project in which Traffic Management for Smart Cities is to be designed. Explain in detail the necessary steps for the above project along with cost considerations. OR What challenges and concerns you see in the development of a smart city? Propose solutions to these challenges and concerns by taking IoT based hardware/software into considerations.	**10**	**CO3**
Q 11	Design an IoT based applications for the treatment of Waste Management as a part of Smart City project. Give complete hardware and software specifications along with cost considerations of the project. Specify issues, if any, like legal, ethical etc. How IoT data shall be used to recycle products? Clearly specify how IoT technology can help where humans struggle.	**10**	**CO4**
	SECTION-C		
Q 12	Design an IoT based applications for the treatment of Air Pollution as a part of Smart City project. Give complete hardware and software specifications along with cost considerations of the project. Specify issues, if any, like legal, ethical etc. How IoT data shall be used to recycle CO2 emissions? Clearly specify how IoT technology can help where humans struggle. OR	**20**	**CO4**

| | How IoT can be used for Earthquake and tsunami early detection. Take an example of your to clearly explain your design. Give necessary hardware and software requirements. | | |