


Name:			
Enrolment No:			
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, May 2022			
Course: Smart City Program: B.Tech CSE (IoT) Course Code: CSIS3009		Semester: 6 Time: 03 hrs. Max. Marks: 100	
Instructions:			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	Describe the JMA application with each process diagram.	4	CO 3
Q 2	Write the complete surveillance camera subsystem working process with diagram.	4	CO 4
Q 3	Explain architecture of gas sensor?	4	CO 2
Q 4	What is predictive maintenance? Explain its architecture.	4	CO 4
Q 5	Explain in detail the components and characters of a smart city.	4	CO 1
SECTION B (4Qx10M= 40 Marks)			
Q 6	How can Geographic Information Systems (GIS) unlock the value of digitized urban ecosystems?	10	CO 2
Q 7	What is the importance of Visualization systems for Smart Cities?	10	CO 1
Q 8	Discuss the opportunities before Indian Smart Cities. OR Explain the Vienna model of Smart City Architecture.	10	CO 4
Q 9	Explain the Process of selection of Smart City.	10	CO 3
SECTION-C (2Qx20M=40 Marks)			
Q 10	<i>“First, our volunteers built a model that predicts which communities have the least amount of smoke-alarm coverage. Then we went a step further by assessing home-fire prevalence to see where fires are most likely to occur in the future. Since we especially want to protect inhabitants, we built a third model that predicts the likelihood of an injury or death when a home fire does occur. All of these models are encapsulated within the Home Fire Risk Map.”</i> Comment on the	20	CO 2

	statement with illustrative examples of complex adaptive systems in smart cities.		
Q 11	<p><i>“Designing a Smart City is a Complex System”</i>. Explain the mentioned statement with a transition graph considering six essential elements of smart city.</p> <p style="text-align: center;">Or</p> <p>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.</p>	20	CO4