

Name:	
Enrolment No:	

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

Course: B. Tech Mobile Computing	Semester: 7th
Program: IOT based Surveillance System	Time 03 hrs.
Course Code: CSIT 451	Max. Marks: 100
Instructions: There are 3 Sections (A, B and C). Section A is having 4 Questions of 5 marks each. Section B is having 5 Questions of 8 marks each. Section C is having 2 Questions of 20 marks each.	

SECTION A

		Marks	CO
Q 1	Describe the role of IOT in surveillance system.	4	CO1
Q 2	What is Fog computing? Differentiate it with cloud computing.	4	CO5
Q 3	Describe RFID and NFC communication.	4	CO3
Q 4	Compare vision-based and sensor-based activity recognition.	4	CO2
Q 5	Describe RFID tagging. Provide the details of RF4CE.	4	CO3

SECTION B

Q 6	Design a surveillance system for protection of antique jewelry kept in a museum with automated processing of surveillance footage	10	CO5
Q 7	Provide the functional details of motion sensor. Compare its functionality with Gyro sensor.	10	CO2
Q 8	Draw the Pin Diagram of Raspberry Pi Chip. How the Camera module and motion sensor can be interfaced with Pi.	10	CO4
Q 9	Describe both ways of human activity analysis i.e. Video based, and Sensor based with description. <p style="text-align: center;">OR</p> For Image analysis provide the importance of Image Segmentation. How Object detection is an import part of video analysis.	10	CO2

SECTION-C

Q 10	<p>Describe the functioning of motion sensor. Design a surveillance system for protection of antique jewelry kept in a museum with integration of Camera and Motion sensor and raise an alarm in case of intrusion.</p> <ol style="list-style-type: none"> 1. Draw the Use case diagram of the system. 2. Provide all the state diagram of the system. <p>Write the python code for the system i.e. Reading values from motion sensor and raising alarm etc.</p>	<p style="text-align: center;">20 [5,5,10]</p>	<p style="text-align: center;">CO2, CO5</p>
Q11	<p>Write down the short notes on any 4 of the following: a). IOT enabling Technologies b). Domain Specific IOT</p>	<p style="text-align: center;">20[5,5, 5,5]</p>	
	<p>c). Behavior Modelling and Activity Analysis d). WPAN Technologies e). Distributed Smart Surveillance Architecture f). Automatic Forensic Video Retrieval (AMVR)</p> <p style="text-align: center;">OR</p> <p>Describe the camera module used with raspberry pi and its interfacing. Write the python code for interfacing the camera to the pi module.</p> <p>Now design a system for using same camera module and pi which is used to provide the check in check out process of the employees capturing the attendance. Design the system and provide the python code for with OpenCV libraries.</p>	<p style="text-align: center;">20 []</p>	<p style="text-align: center;">CO1, CO2, CO3, CO4</p>