**UPES**
UNIVERSITY OF TOMORROW

## UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
### End Semester Examination, May 2022

Course:  Development of IOT Applications with Case Study          Semester: VIII
Program:  B.Tech CSE ECRA                                        Time     : 03 hrs.
Course Code: CSIS 4008 P                                          Max. Marks: 100

Instructions:
The answers should be technically-sound and to the point.

### SECTION A
### (5Qx4M=20Marks)

| S. No. | | Marks | CO |
|---|---|---|---|
| Q 1 | Define various component of IoT with help of a diagram. | 4 | CO1 |
| Q 2 | List different microcontrollers used capture data in IoT systems. State the pro and cons of each | 4 | CO2 |
| Q 3 | Explain any four applications areas of IoT. | 4 | CO1 |
| Q 4 | State how IoT system are different from M2M . | 4 | CO1 |
| Q 5 | Define digital twins and its possible applications. | 4 | CO2 |

### SECTION B
### (4Qx10M= 40 Marks)

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|---|---|---|---|
| Q 6 | Illustrate various challenges faced with designing IoT system with technologies of industry 4.0 | 10 | CO1 |
| Q 7 | Explain the term 'smart city. Discuss the building blocks of an IoT-based smart traffic light system. | 10 | C03 |
| Q 8 | Describe Personnel Navigation Devices "PND"? Discuss whether the GPS-enabled smartphone is a substitute for PNDs. | 10 | CO2 |
| Q 9 | Design a smart parking system using components of IOT.  Appraise various schemes  and strategies designed to overcome the problem of traffic congestion **OR** Design a Pipeline Leak detection system using components of IOT. Appraise various strategies designed to avoid environmental hazard. | 10 | CO4 |

### SECTION-C
### (2Qx20M=40 Marks)

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|---|---|---|---|
| Q 10 | Describe the architecture of IRNSS. Categorize and explain its offered services with examples. | 20 | CO3 |
| Q 11 | Discuss the role of IoT in the healthcare sector. Let us assume that, you | 20 | CO4 |

| | have been assigned a task to design an IoT-based remote healthcare monitoring system. How would you approach this assignment? <br><br> **OR** <br><br> Justify that cars are not a simple transportation medium anymore. In your view, how is IoT transforming the automotive industry? Give at least five IoT-enabled features of smart cars. | | |
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