

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATIONS-May 2022

M.Tech-II Semester (ECE)

COURSE CODE (CREDITS): 21M1WEC236(3)

MAX. MARKS: 35

COURSE NAME: Smart Internet of Things

COURSE INSTRUCTOR: Dr. Rajiv Kumar

MAX. TIME: 2 Hours

*Note: All questions are compulsory. Marks are indicated against each question in square brackets.*

Qu-1: a) Justify, the use of real-time systems in industry automation supervisory control and data acquisition (SCADA) and automated car assembly plants with the help of one working example of each. [4]

b) Give, the basic generalized model of a real-time system. Further, try to augment it with the help of IoT framework. [1+2=3]

Qu-2:a) Highlight three main characteristics of a real-time operating system(RTOS): Concurrency, timing constraints and correctness. [3]

b) With reference to IoT, explain with example three real-time tasks: hard, soft and firm real-time tasks. [3]

Qu-3: Specify, the elements of process, sensor, controller and communication related to internet of things (IoT) in the following system:

- Improving supply chain visibility using IOT-internet of things
- Smart Environment Data Monitoring
- Development of an Energy Meter based on IOT
- IOT- based Emergency Health Monitoring System

[8]

Qu-4: a) In what way smart city affect you, your home and your workplace. [3]

b) Give an architectural design plan with reference to the smart city framework:

“Connected devices can help to: i) reduce congestion on local roadways , ii) alert the fire department in case of emergencies, iii) even signal the need for road maintenance or iv) additional police petrol.” [4]

Qu-5: a) How does the smart aircraft development impact you? Briefly explain. [2]

b) What is future of drone aircraft? Enlist problems associated with drones. [5]