DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

University Institute of Engineering and Technology, C.S.J.M. University Kanpur

Internet of Things (CSE-S530)

Odd Semester - 2022-23   Year: 4th year

(2K19)

Mid Semester-I Examination

Time: 1.5H

Maximum Marks: 30

Note: All questions are compulsory.

SECTION A

A) **Each question carries 1 mark (Write True or False against each statement**

1) IOT devices need microcontrollers.
2) IOT devices are completely safe.
3) User interface is not a fundamental component of an IOT system?
4) A keyboard is a digital sensor.
5) Stepper motors is an actuator in IOT?
6) IOT gateway must provide Protocol abstraction.
7) IOT is network of sensors.
8) Laptop is not an IOT device?
9) MQTT follow request response model.

SECTION B

Each question carries 3 marks

10) What are the functional components of IOT?
11) Discuss the IOT interdependencies with proper block diagram.
12) Discuss the components of MQTT with proper diagram.

SECTION C

Each question carries 6 marks

13. (a) Discuss the communication model of IOT.

(b) Discuss the MQTT topics with the help of suitable example.

14. (a) Discuss the AMQP frame types.

(b) Discuss the role of messaging modes of COAP and also discuss the COAP position?

Internet of Things (CSE-S530)

Odd Semester - 2022-23

Year: 4th year (2K19)

End semester Examination

Time: 3hr

Maximum Marks: 50

Note: All questions are compulsory.

SECTION A

Each question carries 1 mark

1. Which layer is used for wireless connection in IoT devices?
   a) Application layer
   b) Network layer
   c) Data link layer
   d) Transport layer

2. Which programming language is used by Arduino IDE IoT software for writing codes?
   a) Python
   b) Java
   c) C/C++
   d) JavaScript

3. Which layer is CoAP?
   a) Control layer
   b) Transport layer
   c) Service layer
   d) Application layer

4. CoAP provides which of the following requirements?
   a) Multicast support and simplicity
   b) Low overhead and multicast support
   c) Simplicity and low overhead
   d) Multicast support, Low over head, and simplicity

5. MQTT is _____ oriented.
   a) Data
   b) Message
   c) Network
   d) Device

6. What are the key components of a M2M system?
   a) Vortex DDS
   b) Smart Homes
   c) Sensors and Wi-Fi
   d) Protocols

7. What is the component of an IoT system that executes a program?
   a) A sensor
   b) A microcontroller
   c) An actuator
   d) A digital to analog converter

8. The core element of architecture of smart city is _____
   a) Mobile Unified Service
   b) Urban Application Platform
   c) Management center
   d) Integrated Information Provider

9. One way to see various considerations addressing IoT analytics is?
   a) 4-Tier Analytics
   b) 2-Tier Analytics
   c) 1-Tier Analytics
   d) 3-Tier Analytics

10. What is the full form of IDE in Arduino IDE IoT software?
   a) Intra Defense Environment
   b) Intra Development Environment
   c) Integrated Development Environment
   d) Integrated Deployed Environment

SECTION- B

Each question carries 4marks

11. What are sensor nodes? Discuss the constraints and challenges of sensor nodes.
12. What are four pillars of IOT? Explain.
13. Draw and explain 4-layers of IOT architecture.
14. Differentiate between WOT & IOT.
15. Explain AMPQ with the help of suitable example. Discuss features also.

SECTION- C

Each question carries 10 marks

16. Explain in detail the followings about
   a) Unified IOT middleware framework architecture
   b) WOT and Business Intelligence

17. What is IoTivity? Explain. Why interoperability is required? Discuss the device and user interoperability with the help of suitable example.