PRANVEER SINGH INSTITUTE OF TECHNOLOGY, KANPUR

Odd Semester

Session 2023-24

CT-1

B. Tech. 5th Semester

Introduction to Internet of Things (KOT-501)

CO Number	Course Outcome
CO1	To define [L1: Remember] and describe [L2: Understand] various parameters related to IoT, IoT based Hardware, network & communication aspects, basics of programming the Arduino and challenges in IoT design.
CO2	To explain [L2: Understand] IoT Examples, design principles for connected devices, embedded platforms for IoT, programming the different hardware for IoT and challenges in IoT design.
CO3	To illustrate (L3-Apply) IoT based hardware in various fields of IoT, coding using an emulator including network & communication aspects.
CO4	To inspect (L4-Analyze) IoT based hardware, basics of programming the Arduino with IoT platforms.
CO5	To design [L5: Create] IoT based Hardware, IoT programming for different types of hardware in various field of IoT and its application.

Time: 1.5 Hrs. M. M. 15

Section A

Q1. Attempt all questions: **(1X3 = 3 Marks)**

a) Define IoT on the basis of IoT accessibility. CO1

b) Using default baud rate add two numbers in Arduino IDE. CO1

c) Explain the concept of PWM. How many PWM pins are available in Arduino UNO board? CO2

Section B

Q2. Attempt all questions: **(2X4 = 8 Marks)**

a i) Design and interface traffic light controller using Tinkercad. What is the use of PWM in automatic street lights? CO4

Or

ii) *Design and interface push button in pull up configuration using Tinkercad emulator. Explain the concept of pull up and pull down.* CO4

b i) *Explain M2M communication system with proper block diagram and differentiate between IoT and M2M.* CO2

Or

ii) Explain the process of importing the libraries in Arduino IDE. Interface I2C LCD with Adafruit library using Tinkercad emulator. CO2

c i)	Illustrate the process of installation of Arduino IDE with proper diagrams.	CO3
	Or	
ii)	Illustrate the process Installation procedure of Node MCU with labeled diagrams.	CO3
d i)	Describe the characteristics of IoT system.	CO2
	Or	
ii)	Describe different IoT fields with example by explaining the layered structured diagram.	CO2

Section C

(4X1 = 4 Marks)

Q3		
i)	Explain the architectural view of IoT with proper block diagram.	CO2
	Or	
ii)	Explain Arduino board anatomy with labeled diagram. What is the use Tx and Rx pins in Arduino?	CO2