

## Course outline

How does an NPTEL online course work?

### WEEK 1 Introduction to IoT

- Introduction and Definition of IoT
- Location, Applications, and Power
- Challenges Part-01
- Challenges Part-02
- Challenges Part-03
- Challenges Part-04
- Unique ID

### Quiz: Week 1 Assignment 1

- Unique ID example code
- Week 1 - Lecture notes
- Week 1 Assignment 1 Answers

### WEEK 2 Addressing the Power challenge

WEEK 3 Addressing the Power challenge continued and System Design for low power

### Week 4 Sensors and actuators

### WEEK 5 Power management algorithms

WEEK 6 IoT protocols – MQTT, COAP, and Websockets with associated applications

WEEK 7 Low power wireless technologies – BLE, IEEE 802.15.4e, Wi-Fi

WEEK 8 Low Power Wide area technologies – NBloT, LTEM1, LoRa and BLE

### Video Download

# Week 1 Assignment 1

The due date for submitting this assignment has passed.

**Due on 2021-08-18, 23:59 IST.**

As per our records you have not submitted this assignment.

- 1) What are the limitations of an SoC's internal RC oscillator **1 point**
- Accuracy and repeatability
  - Temperature
  - Change in temperature causes change on RC values
  - Frequency changing with temperature
  - All the above
  - None of the above

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
All the above

- 2) The technology used in national highway for collecting toll charges is **1 point**
- Wi-Fi
  - BLE
  - ZigBee
  - EPC
  - ISO 14443
  - ISO 15693

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
EPC

- 3) If the following are the parameters of ADC, Vref = 5V, and a 10-bit A/D output code is 0x1AB, what is the ADC input voltage? **1 point**
- 2.084 V
  - 2.085 V
  - 2.086 V
  - 2.087 V

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
2.086 V  
OR  
2.087 V

- 4) What is the maximum step size that can be obtained using a 14-bit ADC with Vref of 3.3V? **1 point**
- 0.3 mV
  - 0.4 mV
  - 0.2 mV
  - 0.1 mV

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
0.2 mV

- 5) For a Vref of 3.3V and 10-bit ADC, the controller is reading 0.0502V for the 15th step, and 0.0666 for the 20th step. Choose the suitable ADC error **0 points**
- Gain error
  - Offset error
  - INL
  - DNL

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Offset error

- 6) Which is a suitable micro-controller for simple sense (the sensor value) and send (upload sensor data to cloud) application **1 point**
- Arduino
  - NodeMCU
  - PIC micro-controller
  - MSP430

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
NodeMCU

- 7) PUF is not used for authentication of the node or a device **1 point**
- True
  - False

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
False

- 8) Based on delay difference between 2 or more identical devices, output bits are generated from **1 point**
- Butterfly PUF
  - RO PUF
  - SRAM PUF
  - BusKeeper PUF

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
RO PUF

- 9) Which PUF cannot be implemented on commercially available SoC based IoT devices **1 point**
- RO PUF
  - SRAM PUF
  - ADC PUF
  - None the above
  - All the above

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
RO PUF