

Course outline

How does an NPTEL online course work?

WEEK 1 Introduction to IoT

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

 Introduction to low power software

 ADC driver design and development

 Power optimization

 Weekly Feedback Form

 Quiz: Week 5 Assessment 5

 Week 5 - Lecture notes

 Week 5 Assignment 5 Answers

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 – NBIoT, LTE-M, LoRa and BLE

Video Download

Week 5 Assessment 5

The due date for submitting this assignment has passed.

Due on 2021-09-01, 23:59 IST.

As per our records you have not submitted this assignment.

 1) The input voltage applied to a 12 bit ADC is between 0 to 3.3V and the V_{ref} is set to 3.3V. Calculate the digital output (codeword) when analog input is 2.2V. **2 points**
 2730

 1650

 3099

 3730

No, the answer is incorrect.

Score: 0

Accepted Answers:

2730

 2) The maximum voltage that a 12 bit ADC can measure is set to 2.2V. Suppose an analog input of 3V is applied at the input. Calculate the digital output (codeword) of ADC. **1 point**
 2047

 0

 4095

 3095

No, the answer is incorrect.

Score: 0

Accepted Answers:

4095

 3) The gain block of the ADC driver is set to 1 V and V_{ref} = 1.2 V. At what voltage does the V_{in} saturate? (refer NRF52832 datasheet if required) **1 point**
 3 V

 2 V

 1.2 V

 Does not saturate

No, the answer is incorrect.

Score: 0

Accepted Answers:

1.2 V

 4) During the process of CPU execution, if an interrupt of any priority arrives, which of the following is true. **1 point**
 Follows the next instruction from the existing program

 Jumps to instruction in other registers

 Breaks the normal sequence and executes the interrupt handler

 Holds executing the existing program

No, the answer is incorrect.

Score: 0

Accepted Answers:

Breaks the normal sequence and executes the interrupt handler

 5) Select statements that are true **2 points**
 With polling, you're continuously checking to see if ADC conversion is complete - you're wasting valuable CPU time that you could be using to perform other operations

 With the interrupt, there is interrupt latency, and unless you have some logic in the interrupt service routine , you're still wasting some cycles

 DMA transfers ADC data without CPU intervention

 DMA first interrupts the CPU and then copies the ADC into memory

No, the answer is incorrect.

Score: 0

Accepted Answers:

With polling, you're continuously checking to see if ADC conversion is complete - you're wasting valuable CPU time that you could be using to perform other operations

With the interrupt, there is interrupt latency, and unless you have some logic in the interrupt service routine , you're still wasting some cycles

DMA transfers ADC data without CPU intervention

 6) When a WFI instruction is executed, if the newly arrived interrupt request has the same or lower priority as the current exception, the CPU will do one of the following: **1 point**
 Not wake up and will remain in pending state

 Will wake up and execute interrupt service routine

No, the answer is incorrect.

Score: 0

Accepted Answers:

Not wake up and will remain in pending state

 7) What are the events that can wake WFI instruction from sleep **2 points**
 Debug events

 Interrupt request with a higher priority

 Interrupt request with lower priority

 Halt debug event

No, the answer is incorrect.

Score: 0

Accepted Answers:

Debug events

Interrupt request with a higher priority

Halt debug event