Quiz 1

Due Sep 15 at 1:05pm   **Points** 20   **Questions** 4
Available until Sep 15 at 1:10pm   **Time Limit** 20 Minutes

This quiz was locked Sep 15 at 1:10pm.

Attempt History

	Attempt	Time	Score
LATEST	[Attempt 1](#)	18 minutes	16 out of 20

> ⚠ Correct answers are hidden.

Score for this quiz: **16** out of 20
Submitted Sep 15 at 1pm
This attempt took 18 minutes.

Incorrect	**Question 1**	2 / 5 pts

Provide 2 of the 4 reasons for designing embedded systems from an Architectural POV (point of view):

> understand the flow

> Will allow us to ena

Answer 1:

> understand the flow of data and will be able to access registers based on need

Answer 2:

Will allow us to enable sleep modes to reduce power consumption

---

Incorrect

Question 2

5 / 5 pts

Name 2 standards organizations that are concerned with **safety** of electronics products.

1. International Electro

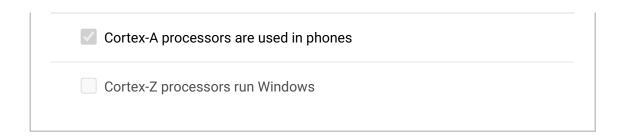2. International Organ

---

Answer 1:
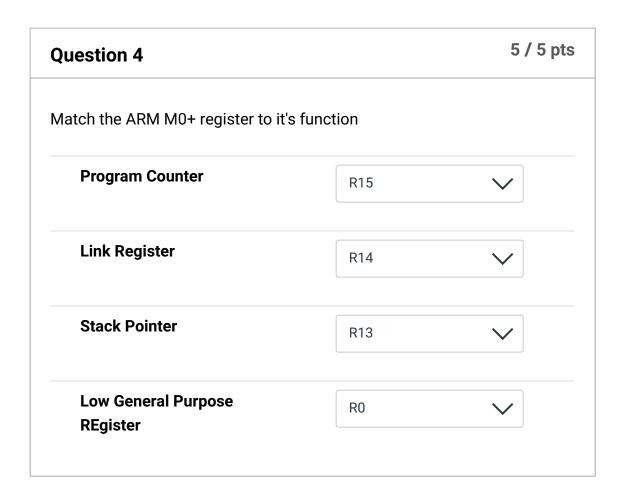
International Electrotechnical Commission

Answer 2:

International Organization for Standardization

Partial

Question 3

4 / 5 pts

Choose only the true statements about ARM Architecture

☐ Includes only Harvard Architecture CPU cores

☑ Well-known for power efficiency

☑ Cortex-M processors run Linux

☑ Cortex-A processors are used in phones

☐ Cortex-Z processors run Windows

Question 4   5 / 5 pts

Match the ARM M0+ register to it's function

Program Counter

| R15 | ⌄ |

Link Register

| R14 | ⌄ |

Stack Pointer

| R13 | ⌄ |

Low General Purpose
REgister

| R0 | ⌄ |

Quiz Score: **16** out of 20

Quiz 2

Due Oct 6 at 1:05pm   **Points** 20   **Questions** 8
Available until Oct 6 at 1:10pm   **Time Limit** 20 Minutes

This quiz was locked Oct 6 at 1:10pm.

Attempt History

	Attempt	Time	Score
LATEST	[Attempt 1](#)	20 minutes	17.5 out of 20

⊘ Correct answers are hidden.

Score for this quiz: **17.5** out of 20
Submitted Oct 6 at 1:02pm
This attempt took 20 minutes.

Incorrect

Question 1   **2 / 2 pts**

d. Answer the following questions about the ARM programming model:

Where is the program counter kept in the register bank?

> Register 15

Incorrect

Question 2   **2 / 2 pts**

c. Answer the following questions about the ARM programming model:

What is the purpose of the C bit?

That is the 'ALU operation carried out' bit. During arithmetic operations, whe

Question 3

2 / 2 pts

b. Answer the following questions about the ARM programming model:

What is the purpose of the T bit?

There are 2 states to the processor. One is the ARM state and other is Thun

Question 4

1 / 2 pts

Answer the following questions about the ARM programming model:

a. How many general purpose registers are there?

30

Question 5

2 / 2 pts

c. Your Company has been asked to build an embedded system that controls a dishwashing machine. The customer is most concerned about longevity, reliability over temperature, and design cost. These are not expensive machines, so the unit cost of the embedded system is a major concern. Size, Weight, and Power are not a concern within reason.

Processing speed required is moderate, 30 MIPs should be sufficient. A major concern is the ease of bug fixes, these must be easy to do. This is all the information you have been given.

Would the Freescale (NXP) KL25Z128M4 be a workable processor choice for this product?

○ No

● Yes

Question 6   1.5 / 2 pts

b. Your Company has been asked to build an embedded system that controls a dishwashing machine. The customer is most concerned about longevity, reliability over temperature, and design cost. These are not expensive machines, so the unit cost of the embedded system is a major concern. Size, Weight, and Power are not a concern within reason. Processing speed required is moderate, 30 MIPs should be sufficient. A major concern is the ease of bug fixes, these must be easy to do. This is all the information you have been given.

Choose 2 of the several standards organizations that your customer will need to respond to regarding this product:

☐ FCC

☐ UL/CSA

☑ IEC

☐ DOD

☐ Telcordia

☑ IEEE

Question 7   2 / 2 pts

2. Your Company has been asked to build an embedded system that controls a dishwashing machine. The customer is most concerned about longevity, reliability over temperature, and design cost. These are not expensive machines, so the unit cost of the embedded system is a major concern. Size, Weight, and Power are not a concern within reason. Processing speed required is moderate, 30 MIPs should be sufficient. A major concern is the ease of bug fixes, these must be easy to do.   This is all the information you have been given.

a. Choose which implementation architecture is the most appropriate for this design.

○ Discrete

○ ASIC

○ FPGA

○ MPU

◉ MCU

○ Embedded PC

Question 8   5 / 6 pts

Select all that are true about Simulink

☑ Simulink is used to model systems as part of model-based design

☑
Simulink is a language for technical computing based in matrix mathematics

☑ Simulink can be used to simulate sampled-data systems

☐ Simulink does not allow previous designs to be reused

☐ Simulink is powerful but hard to use.

Quiz Score: **17.5** out of 20