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	15 minutes	19 out of 20

ⓘ Correct answers are hidden.

Score for this quiz: **19** out of 20
Submitted Sep 15 at 12:57pm
This attempt took 15 minutes.

Incorrect

Question 1 — 5 / 5 pts

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

allows non technica

enables reuse of co

Answer 1:

allows non technical people to estimate the risks of the project

Answer 2:

enables reuse of components

Incorrect

Question 2

5 / 5 pts

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

1. Underwriter's labora

2. Factory mutual

Answer 1:

Underwriter's laboratory/Canadian Standards Association

Answer 2:

Factory mutual

Partial

Question 3

4 / 5 pts

Circle, True or false about the ARM Cortex M0+

- It has a register bank of at least 16 32-bit registers T F
- It has a Link Register used to store the return addresss of a subroutine or function call. T F
- On reset the processor loads the program counter (PC) with the value of the reste vector at 0x0000. T F

- [ ] It is a Harvard Architecture CPU. T F
- [x] It is a RISC Architecture CPU. T F

Question 4

5 / 5 pts

Indicate which are valid blocks in the Cortex-M0+ Block Diagram

- [x] Memory Protection Unit
- [ ] VME Bus
- [ ] MMU
- [x] Micro Trace Buffer
- [x] Debug Access Port

Quiz Score: **19** 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	24 minutes	18 out of 20

ⓘ Correct answers are hidden.

Score for this quiz: **18** out of 20
Submitted Oct 6 at 1:06pm
This attempt took 24 minutes.

Incorrect

Question 1 — 1 / 2 pts

Answer the following questions about the ARM programming model:

a. How many general purpose registers are there?

30

Incorrect

Question 2 — 2 / 2 pts

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

What is the purpose of the T bit?

Indicates processor's current state: 0-ARM state, 1-thumb state

Incorrect

Question 3

2 / 2 pts

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

Where is the program counter kept in the register bank?

PC is stored in R15 - 32 bit register

Incorrect

Question 4

2 / 2 pts

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

What is the purpose of the C bit?

The carry (C) bit is set when there is a carry out of the operation.

Question 5

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 6

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

- (selected) Yes

Partial

Question 7

2 / 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
- [x] UL/CSA
- [x] IEC
- [ ] DOD
- [ ] Telcordia
- [ ] IEEE

Partial

Question 8

5 / 6 pts

Name the tools that engineers need to build an Embedded System (Check all that apply)

- [x] IDE
- [ ] Paper shredder
- [x] Oscilloscope
- [x] Voltmeter
- [ ] Moxie
- [ ] Staple Gun
- [x] Evaluation Board

Quiz Score: **18** out of 20