

Unit 5 - Week 3

Course outline

How does an NPTEL online course work?

Week 0

Week 1

Week 2

Week 3

Elements of Microcontroller Ecosystem Continued

Power Supply for Embedded Systems

Power Supply for Embedded Systems Continued

Feedback Form

Quiz : Assignment 3

Week 4

Week 5

Week 6

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Lecture PPT

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Assignment Solutions

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Assignment 3

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-10-07, 23:59 IST.

1) A microcontroller with 10 MHz clock requires 10 clock cycles to process any sample. Which analog signals with the maximum frequency component given below, can this microcontroller successfully sample? **1 point**

- 10 Mhz
- 1 Mhz
- 600 KHz
- 200 KHz

No, the answer is incorrect.
Score: 0

Accepted Answers:
200 KHz

2) Which of the following is/are TRUE about bootloader? **1 point**

- It is used in In Application Programming (IAP).
- Bootloader program memory section communicates with the host computer to write a new program in bootloader program memory itself.
- It is used in In System Programming (ISP).
- Bootloader program memory section communicates with the host computer to write a new program in user program memory which is the bigger portion of the memory.

No, the answer is incorrect.
Score: 0

Accepted Answers:
It is used in In Application Programming (IAP).
Bootloader program memory section communicates with the host computer to write a new program in user program memory which is the bigger portion of the memory.

3) An 8 bit watchdog timer with a clock of frequency 10MHz is there in a microcontroller. Within what maximum time should the program reset watchdog timer before the watchdog timer resets the microcontroller? **1 point**

- 256ms
- 256us
- 25.6ms
- 25.6us

No, the answer is incorrect.
Score: 0

Accepted Answers:
25.6us

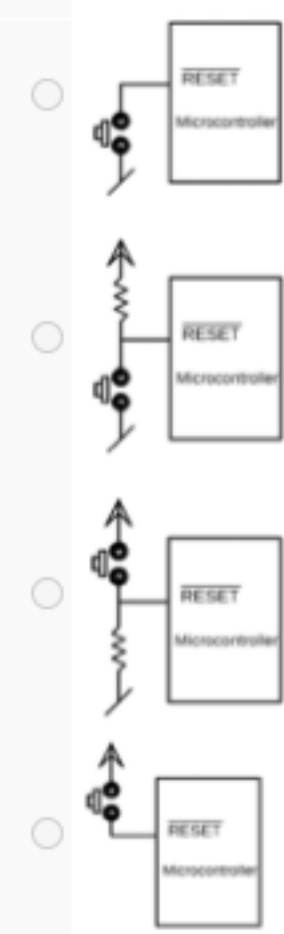
4) How do the contents of RAM get affected by Power On reset and User reset respectively? **1 point**

- No change; No change
- Arbitrary values; No change
- No change; Arbitrary values
- Arbitrary values; Arbitrary values

No, the answer is incorrect.
Score: 0

Accepted Answers:
Arbitrary values; No change

5) Which of the following is the best way to add a user reset switch to a microcontroller if the reset pin is active low? **1 point**



No, the answer is incorrect.
Score: 0

Accepted Answers:

6) Why do we need to reduce Quiescent Current? **1 point**

- Lower Quiescent current directly relates to better battery life.
- A lot of power is wasted in linear regulators to keep them working.
- In No LOAD condition, Quiescent current does not need to be reduced as no load is being driven.
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Lower Quiescent current directly relates to better battery life.
A lot of power is wasted in linear regulators to keep them working.

7) If the battery voltage is always above 3.3V and the required output voltage from a voltage regulator needs to be 3V, what sort of voltage regulators could be used? **1 point**

- LDO
- Buck
- Boost
- Buck-Boost

No, the answer is incorrect.
Score: 0

Accepted Answers:
LDO
Buck
Buck-Boost

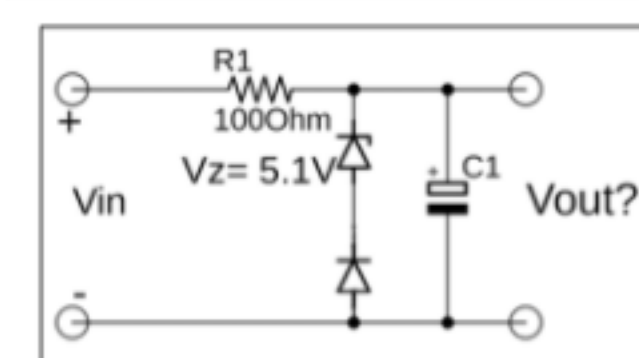
8) A buck regulator is 95% efficient. If the output voltage is 3V, load current is 100 mA, Input voltage is 10V, what is the input current? **1 point**

- 100 mA
- 110 mA
- 31.6 mA
- 316 mA

No, the answer is incorrect.
Score: 0

Accepted Answers:
31.6 mA

9) For the following circuit, if V_{in} is 10V, what is the value of V_{out} ? A silicon rectifier diode is in series with the Zener diode. **1 point**



- 10V
- 5.1V
- 5.8V
- 4.4V

No, the answer is incorrect.
Score: 0

Accepted Answers:
10V

10) Which of the following is an important consideration for a battery? **1 point**

- Terminal Voltage
- Power-to-weight ratio
- Number of charging and discharging cycles
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Terminal Voltage
Power-to-weight ratio
Number of charging and discharging cycles