The Quest

This is a preview of the published version of the quiz

Started: Sep 17 at 9:02pm

Quiz Instructions

The Quest is open book. You are allowed to use any lecture/course notes, homeworks, discussions, or websites (except those for collaborative documents or forums). In addition to this, we will allow the use of a calculator and a Python File or Notebook. You **may not** access or post on any collaborative documents (e.g. Google Docs) or forums (e.g. Chegg). **Collaboration with other students is prohibited.**

Assuming you do not have an approved time extension, you will have 30 minutes to complete the Quest and you may begin the Quest at any point during the window of 7:10-8:00 pm. However, the Quest will close at 8:00 pm, meaning that you must start by 7:30 pm to have the full 30 minutes. **We are not Zoom proctoring.**

We will not clarify anything during the exam so please do your best with the information provided. If you have an issue during your exam please email us at eecs16b-fa20@berkeley.edu and CC the professors (seth.sanders@berkeley.edu and mlustig@eecs.berkeley.edu). Good luck!

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**Question 1**

4.5 pts

Given the following circuit,

![Circuit Diagram]

with $R=1\Omega$, $V_1 = 2V$, $V_2 = 1V$. 

https://bcourses.berkeley.edu/courses/1499730/quizzes/2325289/take?preview=1
1) The absolute value of current through the resistor is \[ \text{Select} \] Amps.

2) The power \[ \text{Select} \] in R is \[ \text{Select} \] Watts.

3) The power \[ \text{Select} \] in V1 is \[ \text{Select} \] Watts.

4) The power \[ \text{Select} \] in V2 is \[ \text{Select} \] Watts.

An inverter in this question is a device for which \[ V_{\text{in}} = 0 \text{V} \] will result in \[ V_{\text{out}} > 0 \text{V} \], and for \( V_{\text{in}} = V_{\text{dd}} \) will result in \( V_{\text{out}} = 0 \text{V} \)

For each of the following circuits, determine if the circuit is an inverter or not.
Is following circuit an inverter?

- No
- Yes

Question 3

Is following circuit an inverter?

1.5 pts
Is following circuit an inverter?

Options:
- No
- Yes
Question 5

Is following circuit an inverter?
Consider the following circuit, with a transistor switch model (Transistor is a short circuit for Vgs >= Vth and open circuit for Vgs < Vth):
Below are several circuits:

![Reference Circuit](image)

Answer the following questions:

1) Circuit \([ \text{Select} ]\) is an equivalent circuit with the same \(V_{out}\) as the reference when \(V_{in} < V_{th}\)

2) Circuit \([ \text{Select} ]\) is an equivalent circuit with the same \(V_{out}\) as the reference when \(V_{in} \geq V_{th}\)
The questions below are optional, with no credit (!)

**Question 7**

- What ..... is your name?
  It is [ ] , King of the Britons.

- What ..... is your quest?
  [ ] . (5 words)

- What... is the air-speed velocity of an unladen swallow?
  What do you mean? An [ ] or [ ] swallow?