✓ **Congratulations! You passed!**

Grade received 100%   **To pass** 75% or higher

Retake the assignment in **7h 55m**

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Module 1 Quiz

Latest Submission Grade 100%

1. If two tasks are executing in parallel, which of the following statements is true?   **1 / 1 point**

- ○ They are using exactly the same hardware at the same time.

- ● They are using different hardware, but running at the same time.

- ○ Their executions are alternating in time.

- ○ One task executes immediately after the other finishes.

✓ **Correct**
Correct!

2. What does the von Neumann bottleneck state about computer architectures?   **1 / 1 point**

- ○ Power consumption is a limiting factor for performance.

- ○ Temperature is a performance bottleneck.

- ○ Clock frequency cannot be improved without considering temperature.

- ● Memory access time is a performance bottleneck.

✓ **Correct**
Correct!

3. What does Moore's law directly observe?   **1 / 1 point**

- ○ Power consumption doubles every 18 months.

- ● Transistor density doubles every 2 years.

- ○ Processor power doubles every 2 years.

- ○ Transistor switching delay is cut in half every year.

✓ **Correct**
Correct!

4. How is dynamic power consumption related to voltage swing?   **1 / 1 point**

- ● Dynamic power is proportional to the square of the voltage swing.

- ○ Dynamic power is proportional to the cube of the voltage swing.

- ○ Dynamic power is proportional to the square root of the voltage swing.

○ Dynamic power is proportional to the capacitance.

✓ **Correct**
Correct!

5. Why can't Dennard Scaling continue forever?   `1 / 1 point`

I. The speed of light limits the potential performance improvements.

II. Voltage must remain above threshold voltage.

III. Some noise margin must be maintained.

○ *I* only.

○ *I* and *II*, NOT III.

◉ *II* and *III*, NOT *I*.

○ *I, II*, and *III*.

✓ **Correct**
Correct!

6. What factor limits clock rates in future designs?   `1 / 1 point`

I. The speed of light.

II. Excessive power consumption.

III. Excessive temperature.

○ *I* only.

○ *I* and *II*, NOT *III*.

○ *II* and *III*, NOT *I*.

◉ *I, II*, and *III*.

✓ **Correct**
Correct!

7. One benefit of concurrent execution on a single processor is that it can hide latency. What does this mean?   `1 / 1 point`

○ When tasks execute in parallel, only the delay of the slowest task matters.

◉ One task can execute while another task is waiting on something.

○ The concurrent execution time of two tasks is less than the sum of their sequential execution times.

○ Total latency is reduced because two tasks can execute at the same time.

✓ **Correct**
Correct!