

## Sample Midterm Exam Answers

1. In a single computer, which of the following would be the fastest?

- a. PCI
- b. AGPx8
- c. Front side bus
- d. PCI-Express
- e. ADSL

*Answer: c*

2. The north bridge *never* has a direct connection to which of the following?

- a. CPU
- b. South bridge
- c. Network card
- d. RAM
- e. Video card

*Answer: b*

3. Autofocus depends upon which of the following?

- a. Spot metering
- b. Horizontal lines
- c. Full frame metering
- d. Vertical lines
- e. Center-weighted metering

*Answer: d*

4. An uninterruptable power supply (UPS) does *not* do which of the following?

- a. Convert AC to DC
- b. Convert DC to AC
- c. Contain a battery
- d. Supply a DC outlet
- e. Protect against power outages

*Answer: d*

5. A rendering engine does which of the following?

- a. Creates wire frames
- b. Calculates positions of corners
- c. Creates texture maps
- d. Uses Z-sorting to calculate how tall an object should be
- e. Magnifies distant objects

*Answer: a*

6. What is a CPU pipeline? How does it work?

*Answer:* The CPU pipeline is a series of stages used to process machine instructions for the CPU. Like an automobile assembly line, each stage is working on a different instruction at a given moment, so that the pipeline processes many instructions at the same time. If all goes well, an instruction finishes executing every clock cycle. Because the entire process is spread across many stages, each stage takes much less time than the entire process without pipelining. Since clock cycle is based on the time of the stage that takes the longest time to complete its job, the clock is much faster in a pipelined CPU than in one without a pipeline. Thus, pipelines allow a CPU to complete many more instructions in a given length of time.

7. Compare and contrast JPEG with MPEG.

*Answer:* JPEG uses sometimes lossy compression to store information about images. The compression algorithm notes patterns within the bytes of the image data, and stores information about the patterns instead of the patterns themselves. The algorithm can lose information when the algorithm chooses to save space by ignoring slight differences so that it can encode a slightly different pattern as if it were a previously seen encoded pattern.

MPEG uses lossless compression to store information about movies. The compression algorithm notes when the image in a frame is entirely different from the previous frame. It will then store the entire frame using lossless compression similar to jpeg. When the subsequent frame is almost identical to the previous frame, the algorithm just stores the changes between the two frames instead of storing the whole subsequent frame. Because most frames are modifications of the previous frame, mpeg can shrink the data substantially.

8. What is the Windows registry, and how is it used?

*Answer:* The registry is a database of configuration settings of the Windows operation system. The operating stores information about the hardware, software, and users in the different tables. Some of the tables store all of the previous configurations created by all of the computer's users. When the user logs into the computer the operating system copies of the configuration information based on the current user into other tables. These user tables allow the system to be customized to each user.