Quantum Computing

1) What was the size of the quantum computer built in 1998 (number of qubits and atomic particles)?

2) What part of the electromagnetic spectrum does an NMR device use?

3) What does a cavity QED use for qubits?

4) Today's encryption standards make the information unreadable to those who do not have the means to decrypt, how is this different that quantum cryptography?

5) What is one of the three leading methods for building a quantum computer?

6) How do Alice and Bob feel about Eve?

7) What is required to protect from environmental noise?

8) What are the three main applications of quantum.

9) What is the biggest difference between quantum cryptography and normal cryptography?

GeForce 4

1) What makes the crossbar memory system more efficient for the GeForce4?

2) What advancements were made to the z-dimension that helped nVidia cut down on processor work?

3) What is the main difference between the MX and Ti series of the GeForce4?

4) Name three commonly used methods for pixel shading.

5) What is a vertex shader?

6) What is the purpose of anti-aliasing, or what does it accomplish?

7) Give two key software features of the nview technology and breifly describe their benefits.

DNA Computing

1) Name one major shortcominng of DNA Computing that must be overcome before any major breakthrough can be made.

2) Name one major advantage of DNA Computing over conventional PC's.

3) What is the key difference between the surface-based model and the sticker-based model?

4) Describe a method for activating all of one specific type of bit string in the Sticker Based Model.

5) What is the major difference between sticker based model and the surface based model in DNA computing?

Centrino

1) In which of the following does MicroOperations Fusion give a performance boost, and why: Floating Point or Integer Code?

2) What is the advantage of using a single MicroOp for load-and-operation code, even though the processor must still wait for the data from the load?

3) What is the size of the Level2 cache?

4) What three components make up a Centrino?

5) What is the difference between basic Speedstep Technology and Enhanced Speedstep Technology?

6) How does the processor conserve power going to the Cache?

7) How much wood could a woodchuck chuck if a woodchuck is named Carl?

AMD x86-64 Architecture

1) What are the two modes of the x86-64 architecture, and what are the restrictions that each mode place on code?

2) To what degree was the x86 instruction set modified to obtain x86-64, and what are the reasons behind this level of modification?

3) How does x86-64 compare with IA-64, and why did Intel choose to pursue x86-64 after developing IA-64 internally?

4) Why are current comparisons between the implementations of the x86-64 architecture (i.e., AMD Athlon FX processor) and other architecture implementations not entirely "trustworthy?"

5) What are some future software packages that are in the making for optimization with the 64-bit architecture?

6) List two reasons why backwards compatibility is important with a new architecture such as the x86-64.

7) What unique trick did AMD use when storing instructions to improve branch prediction?

8) What does the x86-64 architecture do to micro-ops before sending them to the execution resources?

9) What size were the GPR registers extended to?

PIC vs. Intel

1) What are two of the main differences between the PIC and Intel controllers?

2) What were the differences in design focus between the PIC and Intel?

3) A microcontroller is a "___ - chip solution."

4) The two types of microcontrollers compared were

5) The Pic and the _____.

6) Microcontrollers are
   a) more elaborate than microprocessors
   b) less elaborate than microprocessors
   c) as elaborate as microprocessors
   d) similar to but not a donkey