1. **WHAT** are the three major categories of hardware that computers typically have?
   (a) 
   (b) 
   (c) 

2. **WHAT** are the two categories of storage that computers typically have?
   (a) 
   (b) 

3. **WHAT** are the two categories of I/O devices that computers typically have?
   (a) 
   (b) 

4. **NAME AND DESCRIBE** each of the three components of a Central Processing Unit.
   (a) 
   (b) 
   (c) 

5. In the word **MULTICORE**, what does “core” refer to?

6. **NAME TWO DIFFERENCES** between primary storage and secondary storage.
   (a) 
   (b) 

7. **WHAT** are the two categories of primary storage that computers typically have?
   (a) 
   (b) 

8. **NAME TWO THINGS** that every main memory location has.
   (a) 
   (b)
9. **NAME TWO DIFFERENCES** between main memory and cache.
   (a) 
   (b) 

10. **WHY** do computers have cache storage?

11. When data and instructions reside in the following kinds of storage, **WHEN** are they expected to be used?
   (a) Registers
   (b) Cache
   (c) Main memory
   (d) Secondary storage

12. The word “bit” is a contraction of **WHAT PHRASE**?

13. **HOW MANY** different possible values can an individual bit have?

14. **HOW MANY** different possible values can a set of 8 bits have?

15. **NAME TWO DIFFERENCES** between a bit and a byte.
   (a) 
   (b) 

16. **NAME TWO DIFFERENCES** between magnetic media and optical media.
   (a) 
   (b)
17. **NAME TWO WAYS** in which a CD is like ROM.
   (a) 
   (b) 

18. **WHY** are floppy disks so expensive per MB, compared to CD-RWs and DVD-RWs? 

19. **NAME TWO EXAMPLES** of magnetic secondary storage media, and give an advantage and a disadvantage of each.
   (a) Advantage: 
   Disadvantage: 
   (b) Advantage: 
   Disadvantage: 

20. **NAME TWO EXAMPLES** of optical secondary storage media, and give an advantage and a disadvantage of each.
   (a) Advantage: 
   Disadvantage: 
   (b) Advantage: 
   Disadvantage:
21. **WHAT** is the **SPEED** in MB/sec, the **MAXIMUM SIZE** in GB and the **PRICE** per MB of the following storage media on a current PC?

   (a) cache

   (b) RAM

   (c) hard disk

   (d) CD-RW

   (e) DVD-RW

   (f) floppy disk

22. **WHAT** does the term **I/O** stand for?

23. **WHAT IS THE DIFFERENCE** between an input device and an output device?

24. **NAME** three input devices (you are not limited to the ones listed in the lecture notes, but your choices must fit the definition).

   (a)

   (b)

   (c)

25. **NAME** three output devices (you are not limited to the ones listed in the lecture notes, but your choices must fit the definition).

   (a)

   (b)

   (c)

26. **NAME** a device that does **BOTH** input and output (you are not limited to the ones listed in the lecture notes, but your choice must fit the definition).
27. **EXPRESS** the approximate number of bytes in each of these to the nearest power of 10 (that is, as $10^x$ for the appropriate value of $x$):

   (a) kilobyte

   (b) megabyte

   (c) gigabyte

   (d) terabyte

   (e) petabyte

   (f) exabyte

   (g) zettabyte

   (h) yottabyte

28. $2^{10}$ is approximately 10 to **what power**?

29. $2^{20}$ is approximately 10 to **what power**?

30. $2^{30}$ is approximately 10 to **what power**?

31. $2^{40}$ is approximately 10 to **what power**?

32. What does Moore’s Law tell us?

33. Based on Moore’s Law, and using 24 months as the doubling period, approximately **HOW MUCH FASTER** will computers be in 2075 than they are today?

34. Based on Moore’s Law, and using 24 months as the doubling period, approximately **HOW MUCH FASTER** will computers be in 2095 than they are today?
35. **Unix Questions**: Give the Unix commands to accomplish the following tasks.

   (a) **CREATE A COPY** of an existing file named *whoopdedoo* that is in your current working directory, so that the copy is named *tapioca* and is also in your current working directory.

   (b) **EDIT** an existing text file named *want_editing.txt* that is in your current working directory.

   (c) **EDIT** a non-existent text file named *want_editing_too.txt* that will be in your current working directory.

   (d) **MAKE** an executable named *my_program* from a C source file named *my_program.c* that are both in your current working directory. (Assume that an appropriate makefile entry is already in your makefile.)

   (e) **EXECUTE** (that is, run) a program named *this_is_it* that is in your current working directory.

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If you use **ANY** resources other than Dr. Neeman, the TAs (Gurram, Hurt, Shah), the course textbook or the materials posted on the course webpage, you **MUST** reference them on the quiz. **THIS INCLUDES CLASSMATES, FRIENDS, PROFESSORS, ONLINE RESOURCES, ETC.**