CS 1313 010 Fall 2025 Homework #2

Quiz to be held in class Monday January 27 2025 9:00-9:15am

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1. Is a calculator a computer? **EXPLAIN.**

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

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

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

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

6. In the word **MULTICORE**, what does "core" refer to?

7. **NAME TWO DIFFERENCES** between primary storage and secondary storage.

   (a)

   (b)

8. **WHAT** are the two categories of primary storage that computers typically have?

   (a)

   (b)

9. **NAME TWO THINGS** that every main memory location has.

   (a)

   (b)

10. **NAME TWO DIFFERENCES** between main memory and cache.

    (a)

    (b)

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

12. 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

13. **NAME TWO DIFFERENCES** between magnetic media and solid state media.

    (a)

    (b)

14. **NAME TWO DIFFERENCES** between magnetic media and optical media.

    (a)

    (b)

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

16. **NAME TWO EXAMPLES** of solid state secondary storage media, and give an advantage and a disadvantage of each.

(a)
Advantage:

Disadvantage:

(b)
Advantage:

Disadvantage:

17. **NAME TWO EXAMPLES** of magnetic secondary storage media, and give an advantage and a disadvantage of each.

(a)
Advantage:

Disadvantage:

(b)
Advantage:

Disadvantage:

18. **NAME TWO EXAMPLES** of optical secondary storage media, and give an advantage and a disadvantage of each.

(a)
Advantage:

Disadvantage:

(b)
Advantage:

Disadvantage:

19. **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) USB 3 flash drive

    (e) CD-RW

    (f) DVD-RW

    (g) floppy disk

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

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

22. **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)

23. **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)

24. **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).

25. The word "bit" is a contraction of **WHAT PHRASE**?

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

27. **HOW MANY** different possible values can a set of 3 bits have?

28. **HOW MANY** different possible values can a set of 6 bits have?

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

30. **NAME TWO DIFFERENCES** between a bit and a byte.

    (a)

    (b)

31. **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

32. 2^{10} is approximately 10 to **what power?**

33. 2^{20} is approximately 10 to **what power?**

34. 2^{30} is approximately 10 to **what power?**

35. 2^{40} is approximately 10 to **what power?**

36. 2^{50} is approximately 10 to **what power?**

37. 2^{60} is approximately 10 to **what power?**

38. What does Moore's Law tell us?

39. Based on Moore's Law, and using 2 years as the doubling period, approximately **HOW MUCH FASTER** will computers be in 2085 than they are today?

40. Based on Moore's Law, and using 2 years as the doubling period, approximately **HOW MUCH FASTER** will computers be in 2105 than they are today?

41. **Unix Questions**: Give the Unix commands to accomplish the following tasks.

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

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

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

    (d) **EXECUTE** (that is, run) a program named `run_this` that is in your current working directory.

If you use **ANY** resources other than Dr. Neeman, the TAs/graders (Basiri, Bilal), 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.**