

Name: _____

ID: _____

ECS 15: Introduction to Computers
Finals
March 19, 2010

Notes:

- 1) The final exam is open book, open notes.
- 2) You have 2 hours, no more: I will strictly enforce this.
- 3) The final is divided into 3 parts, and graded over 90 points (actually 100 points, 10 of which are considered extra credit points)
- 4) You can answer directly on these sheets (preferred), or on loose paper.
- 5) Please write your name at the top right of each page you turn in!
- 6) Please, check your work! If possible, show your work when multiple steps are involved.

Part I (20 questions, each 2 points; total 40 points)

(these questions are multiple choices; in each case, find the most **plausible** answer)

- 1) *An example of an **input device** is*
 - a. The printer,
 - b. The CPU,
 - c. The keyboard,
 - d. The monitor.

- 2) *A **MAC address** can be found on:*
 - a. The back of your MacBook laptop,
 - b. A NIC card,
 - c. The graphics card,
 - d. The CPU fan

- 3) *One main advantage of a **solid state drive** compared to a **regular hard drive** is:*
 - a. It does not require power
 - b. It has a much larger capacity (several petabytes)
 - c. It has no moving parts so it is less fragile
 - d. It does not require cables as it works wirelessly

- 4) *CPUs in computers are covered with a **heat sink** to:*
 - a. Dissipate the heat they release
 - b. Make them look pretty
 - c. Protect them from shocks (for example if the computer falls)
 - d. Isolate them from the other devices to avoid interferences

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5) In Python, if you write:

```
A="6"
```

```
B=4
```

```
C=A+B
```

The **value of C** is:

- a. 10
- b. 64
- c. "64"
- d. Undefined, and you get a syntax error

6) In Python, if you write:

```
A="6"
```

```
B=4
```

```
C=A*B
```

The **value of C** is:

- a. 24
- b. 64
- c. "6666"
- d. Undefined, and you get a syntax error

7) Which of the following are **NOT** executed by the BIOS (check all that applies):

- a. Run POST tests
- b. Start drivers for devices attached to the computer
- c. Print a test page on the printer
- d. Load the operating system

8) Which of the following **does NOT** refer to memory?

- a. EPROM
- b. RAM
- c. ROM
- d. GPU

9) Which of the following is **NOT** a set for character encoding?

- a. ASCII
- b. Unicode
- c. VSLI
- d. Extended ASCII

10) What is the **World Wide Web**?

- a. A computer game
- b. An operating system
- c. A part of the internet that enables information sharing
- d. The internet

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11) Assume that you are preparing a term paper and you want to use the Web as a source of information. **Which of the following statement is TRUE?**

- a. You are free to copy information you find on the Web and include it in your paper
- b. You do not have to cite the Web sources you use for your paper
- c. You should never consult the Web when you are working on a paper
- d. Just like print sources, Web sources must be cited in your paper. You are not free to plagiarize information you find on the Web.

12) Which one of the following is most probably **NOT** an example of an extension in a URL?

- a. .com
- b. .edu
- c. .npr
- d. .gov

13) How can you catch a computer virus?

- a. Sending e-mail messages
- b. Using your computer during winter
- c. Shopping online
- d. Opening an e-mail attachment

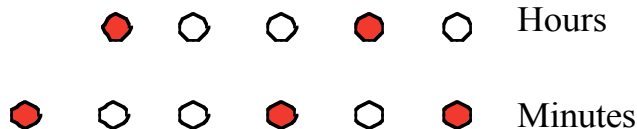
14) Which binary number comes right after the binary number 101111?

- a. 101112
- b. 101110
- c. 111111
- d. 110000

15) In Python, if you write the instruction: $A = (5/3)*(3/2)$ you will get:

- a. $A=2.5$
- b. $A=2$
- c. $A=3$
- d. $A=1$

16) What time is it on this digital clock (filled circle mean "on")?



- a. 10:37
- b. 18:37
- c. 10:41
- d. 18:41

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17) You want to store a movie on your computer. You know that your movie is 2 hour long, that it was filmed at a rate of 25 frames per second and that you need 10 kilobytes to store each frame. How much space do you need to store the whole movie, in megabytes (assuming that 1 megabyte = 1000 kilobytes)?

- a. 1.8 megabytes
- b. 1,800 megabytes (=1.8 GB)
- c. 180,000 megabytes (=180 GB)
- d. 36,000 megabytes (=3.6 GB)

18) What is the largest number (unsigned integer) that can be stored on one byte?

- a. 255
- b. 256
- c. 128
- d. 127

19) After running this Python command, what is the value of A, assuming the input was 1.8?

`A=int(raw_input("Enter the value of the variable A -> "))`

- a. 1.8
- b. 1
- c. "1.8"
- d. 2

20) Firefox and Internet Explorer are:

- a. Two different browsers used on the Internet
- b. Two word processors that can be used on the Internet
- c. Two programming languages
- d. Two different types of modem to connect to the internet

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Part II (three problems, 10 points each; total 30 points)

1) For each category on the left in the table below, provide four examples on the right.

Category	Examples
Input/Output device	
Storage device	
Alternatives for internet connection at home	
Internet applications	
Compiled programming languages	

2) The table below contains invalid or ambiguous Python expressions on the left. For each of these expressions, give the correct expression on the right.

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Incorrect	Correct
Sorting a list: A = [1,4,3,2,6] B=A.sort() print "The sorted list is :",B	
Get the first element of a list: L=[1,4,3,2,6] A=L[1]	
Input a list of integers: String=raw_input("Enter your list of integers") Numbers=String.split(",")	
Test if a number is even: If N/2 == 0: print "The number ",N," is even"	
Compute the sum all elements in a list: L = [1,2,5,3,2] Sum=0 for value in L: Sum=value	

3) The Python module written below reads in an integer number N given by the user and checks if it is "perfect" (A number N is perfect if it is equal to the sum of its divisors, excluding itself; for example, N=6 is perfect: its divisors are 1,2 and 3 and 1+2+3=6). Unfortunately, as written, this program does not work. It contains 5 mistakes, either simple typos or conceptual. Please find all these mistakes:

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```
N=raw_input("Enter the integer number -> ")
```

```
Sumdivisor = 0
```

```
for factor in range(0,N):
```

```
    if N/factor = 0 :
```

```
        Sumdivisor = Sumdivisor+factor
```

```
If Sumdivisor == N
```

```
    print "The number ",N," is perfect"
```

Part III. (two problems, 15 points each; total 30 points)

1) Write a small Python module that:

- Reads in a list of N integers given by the user
- Removes the smallest number and compute the average of the remaining numbers
- Prints the average

For example, if the numbers are 4,3,5 and 1, we remove 1, and compute the average of the numbers 4,3 and 5, which is 4.

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2) Write a Python module that:

- Reads in an integer number N with N between 0 and 9999
- Compute M, the reverse of the number N
- Prints the original number N and the reversed number M, both as integers

For example, if $N=1234$, then $M = 4321$