Sample Midterm

These are sample questions that are very similar to the ones I will ask on the midterm. The midterm will be (slightly) longer.

1. If the current working directory is /usr/ecs036a/tmp, give an absolute path name without any . or .. directories in it for:

   (a) ../src/./../passwd+/misc/./root.c

   (b) /usr/cs/files/../DMS/././../././DMS/schedule

2. If I wanted to send the output of the command from to the file FROM.OUT, and the error messages to the terminal, what would I type to the C shell?

3. How can you delete a file named -i?

4. Multiple choice: which of the following expressions will cause an error to occur when it is evaluated?

   (a) `3 + 5.0`

   (b) `10 % 4 + 7 // 2`

   (c) `abs(5 - 20 // 3) ** 4`

   (d) `"If %d + %d = %2.2f, then %s" % (2, 2, 4, "bye")`

   (e) `4 // "3"`

5. Multiple choice: if `s = "abcdefg"`, what is the value of `s[2:-4]`?

   (a) `"bc"`

   (b) `"c"`

   (c) `""` (that is, the empty string)

   (d) `"fed"`

   (e) It causes an exception

6. Which of the following Python identifiers are legal variable names? For those that are not, say why not.

   (a) `x`

   (b) `Celsius`

   (c) `spam3`

   (d) `<hello>`

   (e) `question?`

7. What is the data type (int, float, string, boolean) of the following? Please evaluate them.

   (a) `3.9 + 6`

   (b) `5 + 1 > 7 or 2 == 1 + 1`

   (c) `int("3")`

   (d) `7 / 2`

   (e) `8 // 3`

8. Write the following formulas in Python.

   (a) a^2

   (b) $\frac{x}{y+z}$

(c) $12x - \frac{3}{y}$

9. What does the following program print?

```
for i in range(1, 5):
    x = (-1) ** i * i
    print(i, x)
```

10. Convert the following into a "for" loop.

```
i = 1
while i <= 10:
    print(i)
    i += 3
```

11. When I ran the following program:

```
x = int(input("Enter a number: "))
y = 1 / x
print("The reciprocal of", x, "is", y)
```

I got the following error message:

```
Traceback (most recent call last):
  File "x.py", line 2, in <module>
    y = 1 / x
ZeroDivisionError: division by zero
```

What was the specific error? Where did it cause the exception? And what did the user type?