Homework 1 # Unix Command-Line Interface Due Sep 3 11:59PM

1: Binary representation of decimal (20 pts)

Determine the binary numbers which represent the following integers:

11_{10}:

1100_{10}:

293_{10}:

97_{10}:

Show all work for credit.

2: Decimal representation of binary (20 pts)

Determine the decimal numbers which represent the following binary numbers:

1001011_2:

110001_2:

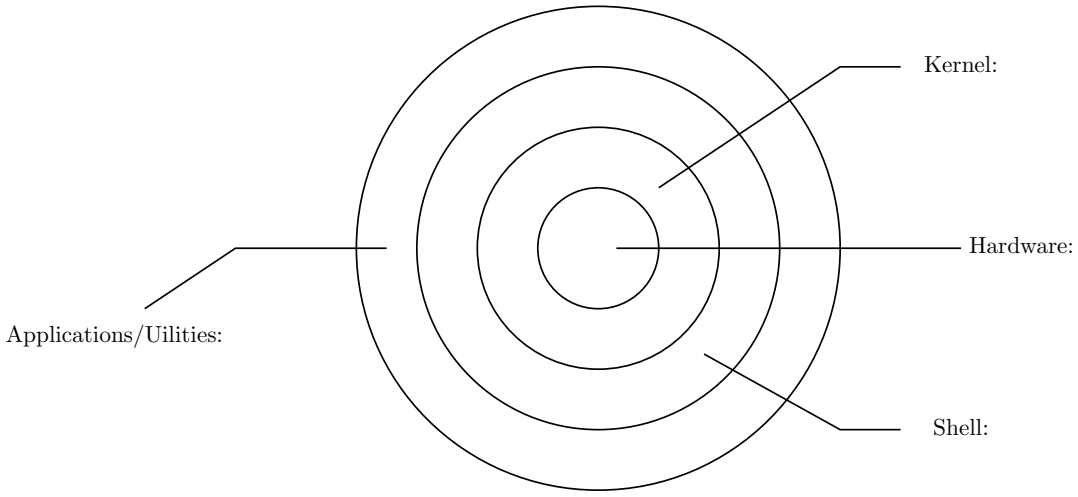
10101110_2:

10_2:

Show all work for credit.

3: Unix environment (10 pts)

Below is a diagram of the Unix environment. In your own words please do the following: list the three essential pieces of hardware on a computer (5pts); describe the purpose of the kernel (5pts); describe the purpose of the shell (5pts); give at least three examples of applications or utilities (5pts).



4: Unix special symbols (10 pts)

Define the special meaning of the following symbols in the Unix terminal when specifying paths to directories or files:

the '∼' symbol:

the '.' symbol:

the '..' symbol:

the '∗' symbol:

5: Unix commands (20 points)

Describe the main purpose of each of the following commands or characters if used on the command-line:

`cat`:

`mv`:

`cp`:

`grep`:

`ls`:

`pwd`:

`cd`:

6: Unix commands (20 pts)

Suppose you are given three files, `file1.txt`, `file2.txt` and `file3.txt`, containing text, shown below using the `cat` command (note that the `$` symbol simply indicates a command prompt, as opposed to command output):

```
$ cat file1
At Bell Laboratories
UNIX systems provide
```

```
$ cat file2
more timesharing ports
```

```
$ cat file3
than all other systems
```

Suppose now that you execute the following command in your terminal:

```
$ cat file2 file3 > file1
```

Please write the expected output of the following command:

```
$ cat file1
```

Use the `touch` command to make `file1.txt`, `file2.txt` and `file3.txt`. You may add the above sentences using vim or by opening the `.txt` files with a text editor. Check your work on your machine!