

Beginning C Programming for Engineers

Homework Set 6

Name: _____

This homework set will not be collected or graded. Nevertheless, it will be excellent preparation for the portion of the final exam that deals with bit operations. Students should feel free to come for help, as with other homework assignments.

1. Convert this binary numeral into the equivalent hexadecimal and octal numerals.

11111110111011011111101011001110

2. A device is connected to a computer that can return its current coordinates on earth, as well as the orientation of the device. The `getOrientation` function reads the current orientation data from the device. Bits 6–11 of this data give the horizontal direction the device is pointing, as a 6-bit integer.

In the following program fragment, line 3 is incomplete. It needs to extract bits 6–11 from `gps` and store it in `dir`, leaving out all other bits from `gps`, and adjusted so only bits 0–5 of `dir` are used. Please complete this statement. Show your work.

```
1 int gps, dir;
2 gps = getOrientation();
3 dir =
4 printf("Direction: %o\n", dir);
```