Introduction to Digital Computers - Spring 2000

Assignment No. 6

Course homepage: http://www.eng.tau.ac.il/~guy/Digital_Computers00/

Firm Deadline: May 11th

Write DLX instructions for the following program segments. Check your answers with a DLX simulator (link appears in course homepage).

1. Suppose that f, g, h, i, j are variables that correspond to registers 16-20.

```
if (i == j) goto L1;
f = g + h;
L1: f = f - i;
```

2. Suppose that f, g, h, i, j are variables that correspond to registers 16-20.

```
if (i == j) f = g + h; else f = g - h;
```

3. Assume that A is an array of 100 elements (size of each element is a word) and that the compiler associates variables g, h, i, j to registers $17-20$. Suppose that the array A starts at address $Astart$.

```
LOOP: g = g+A[i];
i = i+j;
if (i !=h) goto LOOP;
```

4. Assume that variables i, j, k correspond to registers $19-21$, and that the array *save* starts at address $Sstart$.

```
while (save[i]==k)
i = i +j;
```

5. Assume that variables f, g, h, i, j, k correspond to registers $16-21$.

```
switch (k) {
   case 0: f = i + j; break;
   case 1: f = g + h; break;
   case 2: f = g - h; break;
   case 3: f = i - j; break;
}
```