**Problem ST-1** (3 parts) **Pointers and Arrays**

Assuming a 32-bit system with 32-bit memory interface and 32-bit addresses, answer the following questions.

Suppose the following static variables are allocated in memory beginning at address 5000.

```
int         A[] = {5, 98, 97, 36, 10};
int         C = 25, D = 17, *P = A;
double      H = 3.14;
double      *J = &H;
int         K = 9;
int         *Q = &(A[1]);
```

**Part A:** Determine the numerical values for the following expressions.

| | | | | | |
|---|---|---|---|---|---|
| **A[5]** | _____ | **P[1]** | _____ | **Q[1]** | _____ |
| ***(A+3)** | _____ | **J** | _____ | **&K** | _____ |

**Part B:** Can the following statement be implemented, given the declaration of A above? Explain why or why not? **A = A + 1;**

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**Part C:** Write the MIPS code implementation of the dynamically allocated array access below in the smallest number of instructions. A pointer to the array (declared below) is stored in $3. Variables A, B, and C reside in $4, $5, and $6 respectively. Modify only $1 and $2 and the indexed memory location.

```
int      Array[8][6][32];      /* array declaration */
Array[A][B][C]= 81;            /* implement this */
```

| label | instruction | comment |
|---|---|---|
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