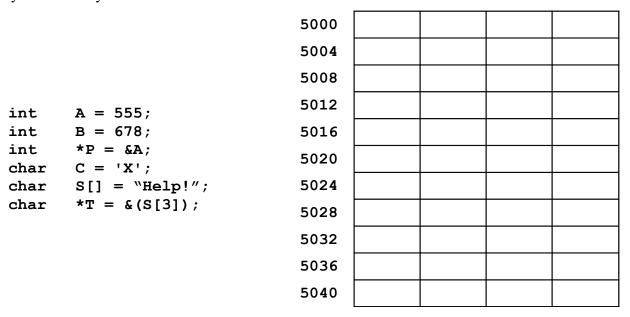## Problem ST-5 (2 parts)　　　　　　　　　Pointers and Arrays

Assuming a 32-bit system with 32-bit memory interface and 32-bit addresses, answer the following questions. The following variables are allocated in memory beginning at address 5000.

Part A (10 points) Complete the memory map below with the variable names at each word or byte in memory. Do not include the variable's value.

```
int    A = 555;
int    B = 678;
int    *P = &A;
char   C = 'X';
char   S[] = "Help!";
char   *T = &(S[3]);
```

Addr				
5000				
5004				
5008				
5012				
5016				
5020				
5024				
5028				
5032				
5036				
5040				

Part B (16 points) Using the variables in part A, give the values of each expression. Assume expressions are non-cumulative (i.e., they follow the declarations). Answers may be characters.

P _____　　*P _____　　S _____　　T _____

*(P+1) _____　　&C _____　　*(S+1) _____　　T[-2] _____

Compare variables **S** and **T**. Are they interchangeable? Why or why not?

_____

_____