

2009.1 Final Exam : C Programming

Student Id. : (_____) , Name : (_____)

* You may use standard library function in your answers.

1. Implement a swap function that switches the values of two parameter variables.

```
void swap(  ,  )  
{  
  
}
```

2. Implement strcat function.

```
/* strcat appends a copy of the string pointed by src (including the terminating null  
character) to the end of the string pointed by dst. The initial character of  
src overwrites the null character at the end of des */  
void strcat(char* des , const char* src)
```

```
{  
  
}
```

3. A **palindrome** is a string which is the same if reversed. (eg eye, radar, rotor, noon, racecar)

Write a function that returns 1 if a parameter string s is a palindrome and returns 0 if (s is not a palindrome).

```
int parlindrome(const char* s)
```

```
{  
  
}
```

4. (1) What is function call stack? explain in detail.

(_____)

(2) Each element of function call stack is called activation record. What are stored in each activation record. List at least three.

(a. _____)

(b. _____)

(c. _____)

5. Write a **atoi** function that takes a character string as input and returns an equivalent integer number. Assume that each character in the input string is a digit character (e.g. '0', '1', ..., '9') For example, `atoi("345")` should return an integer number 345.

(You may use the fact that `5='5'-'0'`)

```
int atoi(const char* s)
```

```
{
```

```
}
```

6. Following source code is a C implementation of selection sorting method that sorts given array elements in an increasing order. Fill out blanks in the code.

```
void selectionSort(int a[], int N)
```

```
{
```

```
    int i, j, min, t;
```

```
    for (i=0; i<N-1; i++) {
```

```
        min=i;
```

```
        for (j=i+1; j<N; j++) _____
```

```
        t=a[min]; a[min]=a[i]; a[i]=t;
```

```
    }
```

```
}
```