**ISLAMIC UNIVERSITY OF TECHNOLOGY**

**CSE 4107**

**Structured Programming 1**

**Assignment 2**

Question: Explain how the following built-in functions work and implement them without using any built-in function.

1. strlen() – This function returns the length of the string.

Alternative Method:

#include <stdio.h>  
int main()  
{  
 char s[] = "Hello";  
 int i = 0;  
 while (s[i] != '\0')  
 i++;  
 printf("%d", i);  
}

C

OUTPUT: 5

2. strcmp() – This function compares two strings lexicographically. If the first string is less than the second, it returns the value -1. If the second string is less than the first, it returns the value 1. If the two strings are exactly equal, it returns the value 0.

Alternative Method:

#include <stdio.h>  
int main()  
{  
 char s[] = "bbbb";  
 char p[] = "aaa";  
 int i = 0, flag = 0;  
 while (s[i] != '\0' && p[i] != '\0')  
 {  
 if (s[i] < p[i])  
 {  
 printf("-1");  
 flag = 1;  
 break;  
 }  
 else if (s[i] > p[i])  
 {  
 printf("1");  
 flag = 1;  
 break;  
 }  
 i++;  
 }  
 if (flag != 1) printf("0");  
}

C

OUTPUT: 1

3. strcpy() – This functions copies the content of the second string, and puts it in the first string.

Alternative Method:

#include <stdio.h>  
int main()  
{  
 char s[ ] = "bbbb";  
 char p[100];  
 int i;  
 while (s[i] != "\0")  
 {  
 p[i] = s[i];  
 i++;  
 }  
 printf("%s", p);  
}

C

OUTPUT: bbbb

4. strncmp() – This function compares two strings lexicographically up to (but not including) index n. If the first string is less than the second, it returns the value -1. If the second string is less than the first, it returns the value 1. If the two strings are exactly equal, it returns the value 0.

Alternative Method:

#include <stdio.h>  
int main()  
{  
 char s[] = "aaab";  
 char p[] = "aaaa";  
 int n = 3;  
 int i = 0,  
 flag=0;  
  
 while (s[i]!='\0' && p[i]!='\0' && i < n)  
 {  
 if (s[i] < p[i])  
 {  
 printf("-1");  
 flag = 1;  
 break;  
 }  
 else if (s[i] > p[i])  
 {  
 printf("1");  
 flag = 1;  
 break;  
 }  
 i++;  
 }  
 if (flag!=1) printf("0");  
}

C

OUTPUT: 0

5. strncpy() - This functions copies the content of the second string up to (but not including) index n, and puts it in the first string.

Alternative Method:

#include <stdio.h>  
int main()  
{  
 char s[] = "aaab";  
 char p[100];  
 int i;  
 int n = 2;  
 for (i=0; i<n; i++)  
 p[i] = s[i];  
 printf("%s", p);  
}

C

OUTPUT: aa