

Sarvajanik college of Engineering and Technology  
Computer Engineering Department  
Computer Programming and Utilization  
**Open Ended Problem ( OEP ) Questions**  
**OCTOBER 2014**

- 1** Implement C program which takes as an input two strings, str1 and str2. Generate third string that is the combination of str1 and str2, such that first character in the resultant string is the first character of the str1, second character is the last character of the str2 and so on. Program must be implemented with the help of user defined function.

E.g. str1="hell" and str2="good" str3="hdeololg".

- 2** Write a Program to implement Insertion Sort and Selection Sort algorithms.
- 3** Write a menu-driven program to implement following String functions - strlen, strcat, strcpy, strcmp, toupper, tolower, toggle, character search
- 4** Write a program to implement following patterns for the input value of n: Your program should be a menu-driven with user defined function.

A	G	J
B C	D	F
D F	B C	
G J	A	
D F	B C	
B C	D F	
A	G	J

- 5** Write a program to convert a decimal number to a binary number and binary to decimal number. Your program should be a menu-driven with user defined function.  
(eg. Decimal 12 -> Binary 1100 / Binary 0111 -> Decimal 7)

- 6 Input a string and sort the characters of the string in ascending order using one string only. Program must be implemented with the help of user defined function.

Eg if the input string is "string" then the output string should be "ginrst".

- 7 Write a "c" program which will read two strings. Merge these two strings into one such that merged string is in ascending order without duplicates. Program must be implemented with the help of user defined function

Example: string1: aefh

String2: bei

After merging String3: abefhi

- 8 Write a program that will check whether a given no. is magic number or not. A number is called magic number if the sum of its digits is 0 or 1.

(Ex.  $345=3+4+5=12=1+2=3\neq 0/1$  so, not a magic number)

- 9 Write a program to implement following searching algorithms. Program must menu driven program.

**Sequential Search Algorithm:**

Step1. Initialize searcharray, searchno, length.

Step2. Initialize pos=0.

Step3. Repeat step 4 till pos<=length.

Step4. if searcharray[pos]=searchno

return pos

else

increment pos by 1.

**Binary Search Algorithm:**

Step1. Initialize an ordered array, searcharray, searchno, length.

Step2. Initialize low=0 and high=length.

Step3. Repeat step 4 till low<=high.

Step4. Middle = (low + high) / 2.

Step5. if searcharray[middle]=searchno

Search is successful

return middle

else if searcharray[middle]>searchno[high]

high=middle - 1

else

low=middle + 1.

- 10** Write a program to find whether the given number is the Krishnamurthy number or not both, using user-defined function and without using user-defined function  
(eg.  $1! = 1$ ;  $2! = 2$ ;  $1! + 4! + 5! = 145$ ;  $4! + 0! + 5! + 8! + 5! = 40585$ )
- 11** Write a program to insert a string at specific location into another string. Then take resulting string as an input and once again insert a string into it.  
(Eg. **Str1:** "I am in lab." **Insert String:** "CO" at position 9<sup>th</sup>  
**Output:** "I am in CO lab." **Insert String:** "Phase 1" at 12<sup>th</sup> position,  
**Output:** "I am in CO Phase 1 lab"
- 12** Write a program that compares contents of two files and return 0 if they are equal and 1 if not equal using function.

### **Compulsory Problem for all**

Write a program to implement Stack using array. Implement following functions : PUSH(), POP(), PEEP(), ISEMPY(), ISFULL()