NEPAL COLLEGE OF INFORMATION TECHNOLOGY
MODEL SET-I

Program: BE IT	Time: 3 Hours
Semester: I	FM: 100
Subject: Programming in C	PM: 45

✓ *Candidates are requested to give their answer as far as practicable in their own words.*
✓ *The figure in the margin indicates the full marks*
✓ *Attempt ALL question*

1) **a.** What are the characteristics of good algorithm? Write algorithm and flowchart to check for prime number. [7]

<div align="center">OR</div>

Explain Software Development Life Cycle in detail

b. Explain Basic Data Types used in C programming. [8]

2) **a.** Differentiate between local and global variables with suitable examples. [7]

b. What are rules for naming a variable? Mention appropriate data type for storing following data. [8]

i. Percentage of student   **ii**. Age of a student

iii. Prime number between 5 to 500   **iv.** Address of an employee

<div align="center">OR</div>

Find the output of following program:

```c
#include<stdio.h>
int a=20, b=30;
int assign(int);
void main( ){
        int num, i;
        for(i=1;i<=10;i=i+2){
                num = 4 * i;
                printf("%d\n", assign(num));
        }
}
int assign(int x){
        int num;
        num = (x < 20)? (a – x): (b + x);
        return num;
}
```

3) **a.** Explain Entry Controlled Loop and Exit Controlled Loop with suitable example. [7]

b. Write a menu driven program for below. *(Use of user defined function entertains full marks)* [8]
        1. Reverse a number
        2. Fibonacci series up to n terms
        3. Sum of digits of a number

4) a. WAP to input 'n' numbers from keyboard and find second largest number. [7]

b. Define string. What are string handling functions? Explain any seven functions with meaning and syntax. [8]

5) a. WAP to sort 1-D array dynamically. [7]

b. Explain pass by value and pass by reference with suitable programs. [8]

6) a. Create a structure for following data: [7]

Name	Roll	Address	Date of Birth		
			dd	mm	yy

WAP to input 100 student record and then display the record of those student whose address is not "Kathmandu".

b. What are the uses of file handling in C? Write a C program to accept odd integers from 1 to 50 and store the values in odd.txt and accept the even integers from 1 to 50 and store the values in even.txt. [8]

7) Write short notes on (any two): [2*5]
   a. Storage Class
   b. Macros
   c. Self- referential structure

*************** ***BEST OF LUCK*** *****************

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1) **a.** Explain different types of software. [7]

b. What is the significance of flowchart and algorithm in programming? Draw flowchart for finding maximum digit in a given number. [8]

2) **a.** Find the output of following snippet showing necessary steps. [7]

```
void main(){
        int x=20, y=10, z=15, w=10;
        x+= ++w − y++;
        x-= ++z % --y;
        x*= ++w + y++ * y--;
        printf("x=%d  y=%d   z=%d   w=%d", x, y, z, w);
}
```

b. How do you extend range of Basic Data Types? [8]

3) **a.** Explain different types of Loop control instructions available in C programing with syntax and flowchart. [5]
b. WAP to print following pattern: [5]

```
                      *
                  *   *
              *   *   *
          *   *   *   *
      *   *   *   *   *
```

b. WAP to find sum of given series upto 'n' terms using function. [5]

$$1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \frac{x^8}{8!} - \cdots$$

4) **a.** WAP to input 'n' integer in AR array. The odd elements are copied to OAR array and even elements are copied to EAR array. Display the content of EAR and OAR arrays. [7]

OR

WAP to multiply two matrix.

b. WAP to read 'n' student name and sort them alphabetically. [8]

5) a. Explain different function used for allocating memory dynamically in C programming. [7]

b. Differentiate between Recursion and Iteration. WAP to print Fibonacci series up to 'n' terms using recursion. [8]

OR

Explain formal and Actual arguments with suitable examples.

6) a. Differentiate between structure and unions. How can you access the member of nested structure? [7]

b. What is the use of file pointer? Write a C program to accept 'n' integers form users and save it to a file name "file.txt". Read the numbers form file and append sum to the end in file. [8]

7) Write short notes on (any two): [2*5]
   a. break and continue
   b. Pass by reference
   c. Conditional Operator

**************** *BEST OF LUCK* *****************