NEPAL COLLEGE OF INFORMATION TECHNOLOGY
BALKUMARI LALITPUR

Level: Bachelor   Year   : 2009
Programme: BE   Full Marks : 100
Course: Programming in C   Time   : 3 hrs

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1 a) Explain briefly the various generations of computers.   5

   b) Draw the block diagram of Digital computer? Explain each part in brief.   5

   c) What is an algorithm? Define the advantages of Flowchart with reference   5
      to a flowchart to identify whether a user given number n is prime or not.

2. a) What is the output of the following program?   5
    void main (){

```
        int k, a;
        a = 10;
        for(k=0; k<10; k++){
                if(k%2 = =0)
                a = a+k;
        else
                a = a–1;
        printf("a=%d\n",a);}
        printf("\n the value of a = %d", a);
}
```

   b) How does the decision control mechanism differ from loop control
   mechanism in C? Explain 3 major types of looping with examples of
   flowchart and program.   2+8

3. Write program for following by using function *(Any three)*   3*5
        a) Check whether given string is palindrome or not
        b) Find all the prime numbers from 100 to 200
        c) Sum of the following series.

$$\text{sum } (x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \ldots\ldots\ldots \frac{x^n}{n!}$$

   d) Generate the pyramid as follows:

```
1
2   2
3   3   3
4   4   4   4
3   3   3
2   2
1
```

4. a) Write a program read a 4x4 order matrix then compute following using menu   10
    based system as

            M A I N   M E N U
            ****
            1. Sum of all elements
            2. Sum of all elements of any row
            3. Sum of all elements of any column
            4. Sum of all elements of left diagonal
            5. Sum of all elements of right diagonal
            6. Exit

    b) What is the difference between array of pointers and pointer to arrays?   5
       Explain with examples.
    OR
        Write a programme to copy the content of one string into another
        without using strcpy() function.

5. a) How is Union different from Structure? Illustrate with suitable example.   7
    b) Given a structure   8

Name	Address	Telephone	Salary	Year of joining		
				mm	dd	yy

    Write a program to input data of 'n' employees and display records of those
    employees getting salary more than 20000.00

6. a)   What do you mean by file handling? Describe various file handling   7
       functions and write a program to create a file 'NCIT.TXT and write the
       names of 5 students into that file.   8

    b)   Illustrate the difference between call by value and call by reference
       while passing arguments to a function? Write a programme using a single
       function that returns the sum, difference and product of any two numbers
       passed to that function.

7. Write Short notes on: *(Any Two)*   5×2
        a) Operator types
        b) Dynamic memory allocation
        c) Storage Classes in C
        d) strcmp(),strcmpi() and strncmp() functions.