POKHARA UNIVERSITY

Level: Bachelor   Semester – Spring   Year   : 2006
Programme: BE   Full Marks: 100
Course: Programming in C   Time   : 3hrs.

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)   What is an algorithm? Draw a flowchart, which prints the highest   5
    among the given three numbers.

    b)   What do you mean by an operator? Explain different types of   5
    operators used in programming.

    c)   What is the difference between a keyword and an identifier? Write   5
    the rule for defining identifier in C?

2. Describe the output generated by each of the following programs.   3×5

    a) #include <stdio.h>
       int a = 100, b = 200;

       int funct1 (int c);

            main ( )
            {
                    int count, c;

                    for (count = 1; count <= 5; ++count)   {
                            c= 4 * count * count;
                            printf (" %d ", funct1 (c));
                    }
            }

          funct1 (int x)
          {
               int c;

               c = (x < 50) ? (a + x) : (b – x) ;
               return(c);
          }

b)
```c
#include<stdio.h>

main( )
 {
    int i = 0, x = 0;

    for( i = 1; i < 10; ++i )
    {
            if (i %2 = = 1)
                    x + = i;
            else
                    x--;
            printf("%d", x);
            continue;
    }
    printf ( " \nx = %d ", x );
 }
```

c)
```c
#include <stdio.h>

#define ROWS 3
# define COLUMNS 4

int z [ROWS][COLUMNS] = { 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12};

main ( )
 {
    int a, b, c;

    for ( a = 0; a < ROWS; ++a)
    {
            c = 999;
            for ( b = 0; b < COLUMNS; ++b )
                if ( z[a][b]  <  c )   c = z[a][b];
            printf  ( " %d ", c );
    }
 }
```

3. a) Why are functions used? Explain function call by value and call by reference with examples.   8

b) An electricity board charges according to the following rates.   7

    For the first 100 units -------------------------- Rs. 40 per unit

    For the next 200 units ------------------------- Rs. 50 per unit

    Beyond 300 units ------------------------------ Rs. 60 per unit

All users are also charged 'meter charge', which is equal to Rs. 50. Write a complete C program to read the number of units consumed and print out the total charges.

4. a) Write a program to check whether the given string is palindrome or not. (Palindrome is a word which reads same from left to right and right to left. For e.g. LIRIL, MADAM e.t.c.)   7

b) What is an array? Why do we use array in programming language? Write a program to print transpose of a 3 x 3 matrix.   8

5. a) What is pointer? Explain the meaning of the following declaration: 7

    i) int *p;   ii) int *p[10];

    iii) int (*p) [10];   iv) int *p(void);

    v) int (*p) (char*a);

b) Could you return more than one value from a function? If yes explain with suitable program.   8

6. a) What is a file pointer? Explain different types of file opening mode available in C with examples   7

b) How structures differ from union? In a bank there are N customers with attributes name, account no, and balance. Write a program to find out who has highest balance in a bank.   8

7. Write Short notes on (*Any Two*):   2×5

    a) Structured programming

    b) Self-referential structure

    c) while and do-while loop