

2004

COMPUTER PROGRAMMING WITH C

Time Allotted: 3 hours

Full Marks: 70

The questions are of equal value.

The figures in the margin indicate full marks.

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

Answer question No.1 and any six from the rest.

1. Multiple choice : (Any ten)

a) Consider the following program segment

```

Sum = 0;
do{ scanf("%d",&x);
    if(x>0) Printf("%d",x);
    else
        if(x == 0) break;
        Sum+ = X;
    } while(sum<10): [INPUT :- 5,2,0,3,0]

```

i) 5 2 (ii) 5 2 0 iii) 5 2 0 3 vi) 5 2 3

b) What is the output :

```

if ( Printf(" ") )
    Printf(" ABC");
else
    if ( Printf("%d", Printf(" "))
        Printf(" XYZ");
else
    Print("WWW");

```

i) 1 XYZ ii) 0 XYZ iii) 0 WWW iv) ABC

c) Return value of the following function:

```

int fun(int x)
{if (x>100)
    return(x - 10);
else
    return(fun(fun(x+11)));
}

```

i) 89 ii) 90 iii) 91 iv) 92

d) How many times loop will be executed:

```

i =10;
while (-- i)
    Printf("*");

```

i) 10 ii) 11 iii) 9 iv) 8

```

int f(int n)
{
    int i;
    for(i = 1; i <=5; i++)
        Printf("%d", i+f(i));
}

```

i) 2 5 9 14 19 (ii) 2 5 9 11 14
 iii) 2 5 9 14 20 (iv) 2 4 6 8 10

f) What would be the value of C?

```

{
    int c;
    float a,b;
    a = 245.05;
    b = 40.02;
    c = a + b;
}

```

i) 285.07 (ii) 285.0 (iii) 2850 (iv) 285

g) What is the value of U1 & U2?

```

{
    int U1, U2;
    int V = 3;
    int *pV;
    U1 = 2 * (V+5);
    U2 = &V;
    U2 = 2 * (*pV + 5);
}

```

i) U1 = 16, U2 = 16 ii) U1 = 8, U2 = 16
 iii) U1 = 16, U2 = 3 iv) U1 = 8, U2 = 3

h) Suppose i,j,k are integer variables with values 1,2,3 respectively, What is the value of the expression:

```

!((j + k) > (i + 5))?

```

i) 5 ii) 0 iii) 1 iv) 6

i) The function islower(char) checks whether a character is in lower case or not. Therefore it should return :

i) 0 or 1 ii) -1, 0 or 1 iii) a character iv) nothing.

j) The function fopen ("filename", "r") returns

i) Nothing.
 ii) a value 0 or 1 depending on whether the file could be opened or

```

(char color;
 int size;
};
struct st
} char country;
 int date;
 union d;
} flag;

```

To assign a color to a flag, The correct statement is-

- i) flag.color = 'W';
- ii) flag.d.color = 'W';
- iii) flag.color = 'WHITE';
- iv) flage.d.color = 'WHITE';

- 2.a) Compare the use of switch statement with the use of the nested if else statement? What is more convenient and why?
- b) Write a C program that accept command line arguments and the arguments one by one and also the number of arguments p to it.
- 3.a) Write a C program to find the frequency of a particular word by the user from a given text file.
- b) Write a C program to find Greatest Common Divisor (GCD) numbers.
- 4.a) Write a 'C' program that can maintain the name, roll number and marks of a class of students. The size of the class is variable. Includes function to compute the average marks of the class.
- b) What is the difference between 'Structure' and 'Union'? Do with example.
- 5.a) State, with examples, the difference between malloc() and calloc. Consider: char *cp, C1[5]={'H','e','l','l','o'}; cp=(char*)calloc(1000,sizeof (float));
- b) If the program has been assigned 2.037 KB of memory, happens if the program executes this code and why? Consider: int *p, *q; P=(int*) malloc(100 * sizeof(double));

- 6.a) C language is rich in its data types. Explain briefly. 2
- b) What do you mean by explicit and implicit type conversions in C? Explain with example. 2+2
- c) Two variables m and n contain values 10 and 20. Write a program to interchange the contents of m and n without using a third variable. 4
- 7.a) Describe the use and limitations of the functions getch and puts. What is the significance of EOF? 3
- b) What is a command line argument? 2
- c) Write a program that will receive a file name and a line of text as command line arguments and write the text to the file. 5
- 8.a) Write the form of the fopen() function, What are the various modes used for processing the data in files? 3
- b) What are the forms of the getch() and puts() functions? How do they differ from fscanf() and fprintf()? 2
- c) In the file "Text1.txt", I want to scan this file 2 times to find how many times the letter 'e' appears using the integer value of the character (101 in ASCII). I want to open the file only once. Write a program for this job. 5
- 9.a) What is the purpose of key word void in function declaration? What is the function of void in function definition? 2+1
- b) What is the advantage of using function prototypes in a program? 1
- c) What is the meaning of following declaration? 2x3
- i) int f(int a);
 - ii) Char f(void)
 - iii) Unsigned f(unsigned a, unsigned b);
- 10.a) Develop a function to calculate Sum of first n odd integers. 5
- b) Develop a function to calculate sum of n even integers starting from a given even integer. 5
