FULL LENGTH MODEL PAPER

INTRODUCTION TO PROGRAMMING

BCA 103

GROUP A (Multiple Choice Type Questions)

1. Choose the correct alternatives for the following :

(i) Operating system is a

(a) Application Software
(b) System Software
(c) Firmware
(d) None of these

(ii)ALU is a part of

(a) Memory
(b) Output device
(c) CPU
(d) Input device

(iii)What will be the value of i & m after executing the following code?

```
int i = 5, m;

m = i++
```

(a) 5 & 6
(b) 5 & 5
(c) 6 & 5
(d) 6 & 6

(iv)The function used to detect the end of a file is

(a) eof()
(b) fputs
(c) ferror
(d) fgetch

(v)ASCII value of 'A' is -

(a) 97
(b) 65
(c) 48
(d) 67

(vi)A function may contain

(a) two return statements
(b) more than two return statement
(c) one return statement
(d) none of these

(vii)The output of the following code is

```
for (i = 1; i <= 5; i++)

{
```

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```
        if (1%2)
            continue;
        printf("%d", i);
    }
```

(a) 1 2 3 4 5
(b) 2 4
(c) 1 3 5
(d) none of these

(vii)What will be the output of the following code –

```
    # define SQR (A) A*A
    main ()
    {
        int x = 5;
        int y;
        y = 4* SQR (x-3);
        printf("%d", y);
    }
```

(a) 8
(b) 16
(c) 64
(d) -52

(viii)A 32-bit microprocessor has the word length equal to -

(a) 2 bytes
(b) 1 byte
(c) 4 bytes
(d) 8 bytes

(ix)Which of the following is a Bitwise operator?

(a) <
(b) >=
(c) <<
(d) &&

(x) The output of

```
    fact = 1;
    for (i = 1; i<5; i++);
    fact = fact * i;
    printf ("%d", fact);
```

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is

(a) 24 (c) 5

(b) infinite loop (d) none of these

GROUP B (Short Answer Type Questions)

Answer any three questions

2. (a) What are the differences between recursion and iteration?
   (b) Write a recursive to find the factorial of a number.
3. (a) Convert $(56.78)_{10}$ to binary.
   (b) Convert $(41819)_{10}$ to hexadecimal
   (c) Convert $(36)_{10}$ to octal
4. (a) What do you understand by precedence and the associatively of operators?
   (b) Write a C program to check whether a given number is prime or not prime.
5. With a suitable block diagram, briefly explain the major components of a Computer System.
6. (a) What is dynamic memory allocation? Write about malloc () and calloc () functions.
   (c) What will be the output?

```
void fun(int  *i, int *f)
main()
{
        int i =5, j = 2;
        fun (&i, &f);
        printf("\n%d %d", i, j);
}
fun (int *i, int * j)
{
        *i = *i * *i;
        *j = *j * *j;
}
```

7. Write a C program to copy a disk file into another disk file using command line arguments.

GROUP C (Long Answer Type Question)

Answer any three of the following

8. (a) Draw the flow chart to display the first n terms of the Fibonacci series. The first two terms of the series are respectively 1 and 1. The nth term of the series F is defined by $F_n = F_{n-1} + F_{n-2}$
   (b)Write an algorithm to find the sum of first n even numbers, where n should be read from the user.

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9. (a) Briefly describe the function of different components of conventional digital computer with a suitable block diagram.
   (b)Differentiate between a compiler and an interpreter.
   (c) A magnetic disk pack has 12 surfaces out of which if are readable. Each surface has 50 tracks and each track is divided into a number of sectors. If the total capacity of the disk pack is 50000 K bytes, and the capacity of each sector is 512 bytes then
   (i) How many cylinders are present in the disk pack?
   (ii) How many sectors are present on each track?

10. (a)Explain call by value and call by reference mechanism of passing data from one function to another function. In C which one of the two is used?
    (b) Write a C function to swap two integer data and call the function from main () function. Don't use any third variable.
    (c) Using ternary operator, write a macro to find the absolute of a number.

11. (a) What is structure in C? How is it declared?
    (b) Declare a structure temple having members of appropriate type.
        branch
        name
        roll no
        marks in 8 subjects
    Write a C program to create an array of 30 structure variables and read all the members of each variable.

12. Write short notes on any three of the following
    (a) Pointers in C
    (b) Operating System
    (c) Array of Pointers
    (d) Enumerated data types
    (e) Type Casting

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