BACHELOR OF COMPUTER APPLICATION
First Semester
Name of the Paper: Programming Methodology & C Programming
Paper Code: BCA-03

Duration: 3 Hrs

Full Marks: 70

(PART-B: Descriptive)

Duration: 2 Hrs 40 minutes

Marks : 50

1. Answer any Five Questions: 5× **2=10**

a) Arrange the following type in ascending order in terms of sizes they occupy in memory: char, short, int, long

b) What does extern means in declaration?

c) What is the use of keyword typedef?

d) What's the difference between a structure and a union?

e) Identify name and use of four keywords in C.

f) Explain the term recursion.

g) What is NULL and how it is defined?

2. Answer any Five Questions: 5× **3=15**

a) Give the use of goto, break and continue.

b) What are the logical operators in C?

c) What is an algorithm? Why is it necessary to write algorithm before program coding?

d) Describe precedence and associativity of operators in C.

e) Explain the difference between prefix and postfix increment and how do they affect the result of an expression.

f) What is the difference between a function definition and a function prototype?

g) What is stdin and stdout in C?

3. Answer any Five Questions: 5× 5=25

a) What is 'call by value' and 'call by reference' in a function? Describe with suitable example.

b) Write a C program to find out factorial of a number using recursion in C.

c) Draw a Flowchart to reverse the digits of an integer.

d) Write a C program to find the odd and even numbers up to 100.

e) Write a function to swap two integers.

f) Write a C program to add two matrices using two dimensional arrays.

g) Define a structure for a student having name, roll number and marks. Input 10 records and display them.

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(PART-A: Objective)
Duration: 20 minutes   **Marks : 20**

Q.1 "My salary was increased by 15%!" Select the statement which will EXACTLY reproduce the line of text above.
A) printf("\"My salary was increased by 15/%\!\"\n");
B) printf("My salary was increased by 15%!\n");
C) printf("My salary was increased by 15'%'!\n");
D) printf("\"My salary was increased by 15%%!\"\n");

Q.2 What is a difference between a declaration and a definition of a variable?
A) Both can occur multiple times, but a declaration must occur first.
B) There is no difference between them.
C) A definition occurs once, but a declaration may occur many times.
D) A declaration occurs once, but a definition may occur many times.

Q3. The errors that can be pointed out by the compiler are

A) Syntax errors   B) semantic errors   C) logical errors
           D) none of the above

Q.4 int x = 2 * 3 + 4 * 5; What value will **x** contain in the sample code above?

A) 22   B) 26   C) 46   D) 50

Q.5 C is which kind of language?

A) Procedural   B) Assembly   C) Object-
oriented   D) Strictly-typed

Q.6 In a C expression, how is a logical AND represented?
A) @@   B) || C) .AND.   D) &&

Q.7 Which one of the following will read a character from the keyboard and will store it in the variable c?

A) c = getc();   B) c = getchar(stdin);   C) getchar(
&c)   D) c = getchar();

Q.8 When applied to a variable, what does the unary "&" operator yield?
A) The variable's value
B) The variable's binary form
C) The variable's address
D) The variable's right value

Q.9 According to Standard C, what is the type of an unsuffixed floating-point literal, such as 123.45?
A) long double   B) float   C) double   D) signed float

Q10. It is necessary to declare the type of a function in the calling program if

A) The function returns an integer
B) The function returns a non-integer
C) The function is not defined in the same file
D) None of the above

.1 c = getchar();
What is the proper declaration for the variable c in the code above?
A) char *c;   B) unsigned int c;   C) unsigned char c;   D) char c;

Q.12 What does the "auto" specifier do?
A) It automatically initializes a variable to 0;.
B) It indicates that a variable's memory will automatically be preserved.
C) It automatically increments the variable when used.
D) It automatically initializes a variable to NULL.

Q.13 According to the Standard C specification, what are the respective minimum sizes (in bytes) of the following three data types: short, int and long?
A) 1, 2, 2   B) 1, 2, 4   C) 1, 2, 8   D) 2, 2, 4

Q.14 char txt [20] = "Hello world!\0";
How many bytes are allocated by the definition above?
A) 12 bytes   B) 13 bytes   C) 20 bytes   D) 21 bytes

Q15.What will be the value of count after the following program is executed?

```
{
    Int count, digit=0;
    Count=1;
    While(digit<=9){
            Printf("%d",++count);
            ++digit;
    }
}
```

A) 10   B) 9 C) 12 D) 11

Q16.Product of matrices A(m*n) and B(n*p) will be matrix C with row and column as

A) m and p   B) n and p   C) p and n   D) none of the above

Q17. If the following loop is implemented

{

    Int num;

    Num=0;

    Do{

        --num;

        Printf("%d",num);

        Num++;

    } while(num>=0)

}

A) The program will get into an infinite loop
B) The program will not enter the loop
C) There will be a compilation error reported
D) A run time error will be reported

Q.18 Which one of the following C operators is right associative?
    A) =   B) [ ]   C) ^   D) ->

Q.19 The declaration *void function(int)* indicates function which

A) Has no arguments   B)returns nothing   C) both a and b   D) None of the above

Q.20 Which one of the following is NOT a valid identifier?

A) __ident   B) auto   C) bigNumber   D) g42277

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