BACHELOR OF COMPUTER APPLICATION
FIRST SEMESTER [SPECIAL REPEAT]
PROGRAMMING METHODOLOGY & C PROGRAMMING
BCA-102
[USE OMR SHEET FOR OBJECTIVE PART]

SET A

Duration: 3 hrs. Full Marks: 70

(**Objective**)

Time: 30 mins. Marks: 20

Choose the correct answer from the following: 1X20=20

1. The storage class of a variable declared inside a function is termed as:
   a. Local
   b. Auto
   c. Both a & b
   d. Global

2. && and & are called _____ and _____ operators.
   a. binary & logical
   b. logical & bitwise
   c. logical & address
   d. both b & c

3. A function returns _____ value by default.
   a. char
   b. int
   c. void
   d. float

4. Call by reference can be performed by using _____ in C Programming.
   a. array
   b. string
   c. structure
   d. pointer

5. What is the output of the following program-
   ```
   #include<stdio.h>
   int main()
   {   int n;   for(n = 7; n!=0; n--)          printf("n = %d", n--);   }
   ```
   a. 7, 6, 5, 4, 3, 2, 1
   b. 6, 5, 4, 3, 2, 1, 0
   c. 7, 6, 5, 4, 3, 2, 1, 0
   d. Infinite loop

6. An arithmetic expression contains operands of type integer and float. What is the output on execution of the expression?
   a. Gives an integer value
   b. Program terminates abruptly
   c. Integer type operand is converted to float and perform arithmetic operation.
   d. Float type operand is converted to integer and perform arithmetic operation

7. In case of matrix multiplication, the _____ of the 1st matrix and the _____ of the 2nd matrix should have the same size.
   a. row, column
   b. row, row
   c. column, row
   d. column, column

8. Which statements is/are true about strcmp (s1,s2) if s1 and s2 are two strings-
   i. Returns negative value if s1 is greater than s2
   ii. Returns negative value if s1 is less than s2
   iii. It is a case sensitive function
   iv. It is not a case sensitive function
   a. ii, iii   b. i, iii
   c. ii, iv   d. i, iv

9. The argument of a function says about _____ of the program.
   a. Input type   b. Number of inputs
   c. Both a & b   d. Output type

10. In the concept of array of object, the array is declared in:
    a. tagname   b. member
    c. object   d. None

11. Determine the value of the following logical expression if a=5, b=10 and c=-6
    i. a==c || b>a
    ii. a>b && a<c
    a. i. 1, ii. 0   b. i. 1, ii. 1
    c. i. 0, ii. 0   d. i. 0, ii. 1

12. A function can have-
    i. More than one return type   ii. More than one argument
    a. i-true, ii- true   b. i- true, ii- false
    c. i- false, ii- true   d. i- false, ii- false

13. Which of these are true?
    i. Goto statement can be used in switch.
    ii. Break statement causes the loop to be terminated.
    iii. Exit( ) function causes the loop to be terminated.
    iv. Continue statement go to the next iteration after skipping any statements in between.
    a. i, ii, iv   b. i, iii, iv
    c. iii, iv   d. Only iv

14. Which is not a unary operator-
    a. + +(increment operator)   b. !(logical negation)
    c. & (address)   d. & (bitwise AND)

15. A function which calls itself is said to be _____ function.
    a. Recursive   b. Argument
    c. Calling   d. Command line argument

16. Which is the correct output of the following
    ```
    int a=1;
    do
    {       printf("%d %d", a,15%a);
            a++;
    } while (15/a!=3);
    ```
    a. 1 0
    b. 2 1
    c. 3 0
    d. All

17. Which symbol is used to represent looping in a flowchart?
    a. Rectangle
    b. Oval
    c. Parallelogram
    d. Diamond

18. What is the value of x, m, n after execution of the following statement-
    ```
    int m=10, n=15, x;
    x=++m+n++;
    ```
    a. x=25,m=10, n=15
    b. x=26, m=11, n=15
    c. x=26, m=11, n=16
    d. None of these

19. "In phase 2, we determine the requirements like variables, functions, etc. to solve the problem."- What is phase-2 of Program Development Life Cycle?
    a. Problem Definition
    b. Maintenance
    c. Testing & Debugging
    d. Problem Analysis

20. Which operator is used for dereferencing a pointer variable?
    a. &
    b. *
    c. ->
    d. <-

-- --- --

(__Descriptive__)

Time : 2 hr. 30 mins.   Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. Why do while loop is different with other types of loops in C? Write   10
    a program to enter two numbers & do the following operation.
    1. Press + to add
    2. Press -to subtract
    3. Press * to multiply
    4. Press / to divide
    5. Press % to find the remainder
    Also ask the user whether he/she wants to continue the operation
    or not.

2. a. Consider a situation to store the values of various data in one   5+5=10
        memory location. Which type is the most suitable for this
        situation, justify with proper reason.

    b. Write a program to define a structure of Student, enter the
        records of 10 students and display only those student records
        whose course is BCA and semester is 1st .

3. a. Why recursive function is different with other functions?   3+7= 10

    b. Write a program to check a number is Armstrong or not using
        recursive function.

4. a. What is/are the basic concepts for logic development? Explain   4+6=10
        with proper reason.

    b. Write an algorithm and draw a flowchart to display the sum and
        average of all the odd numbers starting from 1 up to a range
        given by the user.

5. a. Consider a situation that you have to enter a single character   5+5=10
        from the keyboard during runtime. Which function/s is/are the
        most appropriate function/s to be used?

    b. Write a program to check a character is alphabet or not & if it's
        an alphabet then check whether it is vowel or consonant.

6. a. Consider to define rows as well as columns. Which concept is most preferable to use, explain why?

    b. Write a program to multiply two rows & column sets of user given ranges & display all of them in their proper format.

    3+7=10

7. a. Why user defined function is used in a program?

    b. Explain all the categories of user defined function using an example to find the roots of a quadratic equation.

    1+9=10

8. a. Consider a situation that you are using a function & you want to display in the main() function that all the changes you've done inside the function. Which type of concept is most suitable for this, justify with proper reason.

    b. Write a program using this type of function to change the value of a number by decrementing its value with 10.

    4+6=10

== ***== ==