ST. JOSEPH'S COLLEGE (AUTONOMOUS), BENGALURU-27
BCA(DATA ANALYTICS) - I SEMESTER
SEMESTER EXAMINATION: OCTOBER 2021
(Examination conducted in January-March 2022)
BCADA 1121 – FUNDAMENTALS OF COMPUTING AND PROGRAMMING SKILLS USING C

TIME- 3 HOURS   **MAX MARKS-100**

This question paper contains FOUR printed pages and THREE parts

Part A

Answer ALL the questions   **20 X 1 = 20**

1. Which is valid C expression?
   a) int my_num = 100,000;
   b) int my_num = 100000;
   c) int my num = 1000;
   d) int $my_num = 10000;
2. Which of the following declaration is not supported by C language?
   a) String str;
   b) char *str;
   c) float str = 3e2;
   d) Both String str; & float str = 3e2;
3. Which of the following is NOT possible with any 2 operators in C?
   a) Different precedence, same associativity
   b) Different precedence, different associativity
   c) Same precedence, different associativity
   d) All of the mentioned
4. When a C program is started, O.S environment is responsible for opening file and providing pointer for that file?
   a) Standard input
   b) Standard output
   c) Standard error
   d) All of the mentioned
5. Will the following C code compile without any error?
   ```
   #include <stdio.h>
   int main()
   {
     for (int k = 0; k < 10; k++);
        return 0;
   }
   ```
   a) Yes
   b) No
   c) Depends on the C standard implemented by compilers

d) Error

6. What will be the data type returned for the following C function?

   #include <stdio.h>
   int func()
   {
       return (double)(char)5.0;
   }

   a) char
   b) int
   c) double
   d) multiple type-casting in return is illegal

7. Character constants should be enclosed between ___

   a) Single quotes
   b) Double quotes
   c) Both a and
   d) None of these

8. The bitwise AND operator is used for

   a) Masking
   b) Comparison
   c) Division
   d) Shifting bits

9. Explicit type conversion is known as

   a) Casting
   b) Conversion
   c) Disjunction
   d) Separation

10. Header files in C contain

    a) Compiler commands
    b) Library functions
    c) Header information of C programs
    d) Operators for files

11. An Ampersand before the name of a variable denotes

    a) Actual Value
    b) Variable Name
    c) Address
    d) Data Type

12. C supports how many basic looping constructs

    a) 2
    b) 3
    c) 4
    d) 6

13. Continue statement is used

    a) to go to the next iteration in a loop
    b) come out of a loop
    c) exit and return to the main function
    d) restarts iterations from the beginning of the loop

14. A multidimensional array can be expressed in terms of

    a) array of pointers rather than as pointers to a group of a contiguous array

b) array without the group of a contiguous array

c) data type arrays

d) None of these

15. If the size of the array is less than the number of initializers then,

    a) Extra values are being ignored

    b) Generates an error message

    c) Size of Array is increased

    d) Size is neglected when values are given

16. What is the similarity between a structure, union and enumeration?

    a) All of them let you define new values

    b) All of them let you define new data types

    c) All of them let you define new pointers

    d) All of them let you define new structures

17. Which of the following cannot be a structure member?

    a) Another structure

    b) Function

    c) Array

    d) None of the mentioned

18. Which among the given options compares atmost n characters of string ch to string s?

    a) int strncmp(ch, s, n)

    b) int strcmp(ch, s)

    c) int strncmp(s, ch, n)

    d) int strcmp(s, ch)

19. In a stack, if a user tries to remove an element from an empty stack it is called _____

    a) Underflow

    b) Empty collection

    c) Overflow

    d) Garbage Collection

20. If the elements "A", "B", "C" and "D" are placed in a queue and are deleted one at a time, in what order will they be removed?

    a) ABCD

    b) DCBA

    c) DCAB

    d) ABDC

PART B

Answer any TEN questions   **10 X 5 = 50**

21. Convert the following numbers to the bases indicated.

    i)   7451 to octal   ii) 1868 to hexadecimal   iii) 1164 to binary

22. Discuss Excess-3 code in detail.

23. What is flowchart? Explain different symbols used for flowchart.

24. Distinguish between while and do-while statements.

25. Write a C program to explain call-by-reference parameter passing technique.

26. Analyse the difference of For loop and While loop with example.

27. Write brief note on switch statement. Give an example.

28. What is the string handling functions available in C? Write user defined functions for string copy.

29. Explain how structure can be initialized with suitable example.

30. What is a file? Explain with an example the file handling functions.
31. What is union? How does union differ from structure?
32. Discuss the working principle of queue with an example.

PART C

Answer any THREE questions   **3 X 10 = 30**

33. Simplify the following Boolean function using Karnaugh Map
    F (A, B, C, D) = ∑m (0, 2, 4, 5, 7, 8, 9).
34. Write a C program to accept student personal and academic details and store in it a file. Print students' mark sheet.
35. Write a C program to count no. of characters, spaces, lines, words of a file.
36. Write a C program to maintain a computerized version of your family tree. Include capabilities for
    i)   Adding new name (new nodes) to the tree
    ii)   Modifying the tree
    iii)   Displaying the entire tree automatically after each update
    Test the program including at least three generations.