



Register Number:

Date: 13-01-2021.

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE – 27
BCA (DATA ANALYTICS) – I SEMESTER
SEMESTER EXAMINATION – JANUARY 2021
BCADA1320: BASICS OF PROGRAMMING I

This Question Paper Contains Six Printed Page and Three Parts

Time: 2 1/2 hrs.

Maximum marks: 70

PART A

Answer all the questions

20 X 1 = 20

1. Which of the following special symbol allowed in a variable name?
 - A. * (asterisk)
 - B. | (pipeline)
 - C. - (hyphen)
 - D. _ (underscore)
2. By default a real number is treated as a
 - A. float
 - B. double
 - C. long double
 - D. far double
3. When we mention the prototype of a function?
 - A. Defining
 - B. Declaring
 - C. Prototyping
 - D. Calling

4. How many times the while loop will get executed if a short int is 2 byte wide?

```
#include<stdio.h>
int main()
{
    int j=1;
    while(j <= 255)
    {
        printf("%c %d\n", j, j);
        j++;
    }
    return 0;
}
```

- A. Infinite times
- B. 255 times
- C. 256 times
- D. 254 times

5. What will be the output of the following C code?

```
#include <stdio.h>
int main()
{
    j = 10;
    printf("%d\n", j++);
    return 0;
}
```

- A. 10
- B. 11
- C. Compile time error
- D. 0

6. Which of the following cannot be checked in a switch-case statement?

- A. Character
- B. Integer
- C. Float

D. enum

7. Which of the following is the correct order of evaluation for the below expression?

$z = x + y * z / 4 \% 2 - 1$

A. $*/\% + - =$

B. $= */\% + -$

C. $/*\% - + =$

D. $*\% / - + =$

8. How many times the program will print "Welcome"?

```
#include<stdio.h>
```

```
int main()
{
    printf("IndiaBIX");
    main();
    return 0;
}
```

- A. Infinite times
- B. 32767 times
- C. 65535 times
- D. Till stack overflows

9. The keyword used to transfer control from a function back to the calling function is

- A. switch
- B. goto
- C. go back
- D. return

10. What will happen if in a C program you assign a value to an array element whose subscript exceeds the size of array?

- A. The element will be set to 0.
- B. The compiler would report an error.
- C. The program may crash if some important data gets overwritten.
- D. The array size would appropriately grow.

11. If the two strings are identical, then strcmp() function returns

- A. -1
- B. 1

- C. 0
- D. Yes

12. 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

13. What will be the output of the following C code?

```
#include <stdio.h>
void main()
{
    struct student
    {
        int no;
        char name[20];
    };
    struct student s;
    no = 8;
    printf("%d", no);
}
```

- A. Nothing
- B. Compile time error
- C. Junk
- D. 8

14. What will be the output of the following C code?

```
#include <stdio.h>
void main()
{
    int i = 0;
    if (i == 0)
    {
        printf("Hello");
        continue;
    }
}
```

- A. Hello is printed infinite times
- B. Hello
- C. Varies
- D. Compile time error

15. How many times i value is checked in the following C code?

```
#include <stdio.h>
int main()
```

```

{
  int i = 0;
  while (i < 3)
    i++;
  printf("In while loop\n");
}

```

- A. 2
- B. 3
- C. 4
- D. 1

16. Which of the following operator takes only integer operands?

- A. +
- B. *
- C. /
- D. %

17. What would be the output of the following program?

```

void main()
{
  int i=0,j=1,k=2,m;
  m = i++ || j++ || k++;
  printf("%d %d %d %d",m, i, j, k);
}

```

- A. 1 1 2 3
- B. 1 1 2 2
- C. 0 1 2 2
- D. 0 1 2 3

18. What is the dimension of the below C Array.?

```
int ary[]={1,3,5,7}
```

- A. 1
- B. 2
- C. 3
- D. 5

19. Choose a correct statement about a C Multidimensional array.

- A. First Dimension size is optional when initializing the array at the same time.
- B. Last Dimension size is optional when initializing the array at the same time.
- C. It is a must to specify all dimensions of a multidimensional array.
- D. Memory locations of elements of a multidimensional array is not sequential.

20. Choose a correct statement about C String.

```
char ary[]="Hello..!";
```

- A. Character array, ary is a string.
- B. ary has no Null character at the end
- C. String size is not mentioned
- D. String cannot contain special characters.

PART B

Answer Any Four Questions

4 X 5 = 20

21. Discuss the different types of problems and solutions. Explain the steps involved in problem solving technique.
22. Illustrate the various looping statements in C with an example
23. Explain the difference between pass by value and pass by reference. Write the C coding for swapping two numbers using pass by reference.
24. Discuss the purpose of a function prototype. Differentiate built-in and user defined functions.
25. What is Capability Maturity Model? Discuss the functionality of Waterfall model with an example.

PART C

Answer Any Three Questions

3 X 10 = 30

26. Write a C program to multiply two matrices (two-dimensional array) which will be entered by user. The user will enter the order of a matrix and then its elements and similarly the second matrix. Display the output. If the given order of matrices cannot be multiplied, then an error message should be displayed.

27.

- (i) Illustrate the different types of string functions. Explain each with its syntax. (6)
- (ii) Write a C program to find the number of vowels, consonants, digits, and whitespace in a string. (4)

28. Explain the functionality of switch case with a neat example. How break and continue statements impact the execution of switch case?

29. Illustrate how to initialize and access structure and union in C with an example.

30. Discuss the various SDLC Models with its advantages and disadvantages.

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