Reg. No.															

B.Tech. DEGREE EXAMINATION, MAY 2024

First & Second Semester

18CSS101J – PROGRAMMING FOR PROBLEM SOLVING

(For the candidates admitted during the academic year 2018-2019 to 2021-2022)

Note:

(i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.

(ii) **Part - B & Part - C** should be answered in answer booklet.

Time: 3 hours Max. Marks: 100

PART – A (20 × 1 = 20 Marks) Marks BL CO

Answer **ALL** Questions

1. Which of the following is the allowable range for integer constants under 16-bit compiler? 1 1 1

(A) -3.4e38 to 3.4e38 (B) -32767 to 32768

(C) -32768 to 32767 (D) -32668 to 32667

2. What will be the output of the following code? 1 3 1

```
#include <stdio.h>
int main ()
{
char var='a';
printf("%d" var);
}
```

(A) 97 (B) 0.000000

(C) compile time error due to wrong format identifier for character (D) a

3. Where will the space be allocated for an automatic storage class variable? 1 2 1

(A) In CPU register (B) In memory as well as in CPU register

(C) In memory (D) On disk

4. Find the result of the following C program. 1 1 1

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

(A) 10 (B) 11

(C) 0 (D) Error

5. What is the output of the Bitwise OR operation on (0110,1100)? The result is in decimal. 1 3 2

(A) 14 (B) 15

(C) 10 (D) 12

6. Which of the following are incorrect statements? If int a=10. 1 4 2

(i) if (a = = 10) printf("SRMIST");
(ii) if (10 = = a) printf("SRMIST");
(iii) if (a = 10) printf("SRMIST");\
(iv) if (10 = a) printf("SRMIST");

(A) (iii) and (iv) (B) (iii) only
(C) (iv) only (D) (ii), (iii) and (iv)

7. Consider the situation, if it is needed to perform the operation first then check the given condition. Choose the suitable loop structure for this execution situation. 1 3 2

(A) for loop (B) while loop
(C) do-while loop (D) switch statement

8. What is the result of the following code 1 3 2

```
#include<stdio.h>
int main()
{
int x=0;
switch(x)
{
case 1: printf("One");
case 0: printf("Zero");
case 2: printf("Hello World");
}
 return 0;
}
```

(A) One (B) Zero
(C) Hello World (D) ZeroHello World

9. Elements in an array are accessed _____. 1 2 3

(A) Sequentially (B) Exponentially
(C) Randomly (D) Logarithmically

10. In operator precedence, when two operators of same precedence appear in expression, it's called _____. 1 2 2

(A) Composite (B) Aggregation
(C) Associativity (D) Activity

11. Name the variable used as the actual parameters in the call by reference. 1 1 3

(A) Pointer variable (B) Auto variable
(C) Global variable (D) Local variable

12. Find the final output of the following code. 1 3 3

```
#include <stdio.h>
int multi(int a,int b,int c)
{
return (a * b * c);
}
 int main()
{
```

```
int (fp) (int, int, int);
fp=multi;
 printf("The product of three numbers is:%d",
fp(2,3,4)
return 0;
}
```

(A) The product of three numbers is:24
(B) Compile time error
(C) Nothing
(D) Varies

13. Which one of the following is the directive that executes the code if the macro is defined by #define directive? 1 2 4
(A) #ifdef
(B) #ifndef
(C) #ifmacro
(D) #ifdefined

14. What do the following declarations signify? 1 2 4
Char (*pf) ( );
(A) pf is a pointer to function
(B) pf is a pointer to a function which return address
(C) pf is a pointer to a function which return char
(D) pf is a function of the pointer variable

15. Choose the following correct syntax to send an array as a parameter to function. 1 1 4
(A) function(&array);
(B) function(#array);
(C) function(*array);
(D) function(array[size]);

16. Bring out the answer for defining a function within the body of another function. 1 2 4
(A) Allowed only for one function
(B) Possible at any time definition
(C) Legal function definition
(D) Not allowed

17. What is the definition of z in the given declaration? 1 2 5

```
struct srm
{
 int x;
 float y;
};
struct srm *z [10];
```

(A) An array, each element of which is a pointer to a structure of type srm
(B) A structure of 2 fields, each field being a pointer to an array of 10 elements
(C) A structure of 3 fields: an integer, a float, and an array of 10 elements
(D) An array, each element of which is a structure of type srm

18. Which of the following structure declarations will throw an error? 1 2 5
(A) struct t{}s; main(){}
(B) struct t{}; struct t s; main(){}
(C) struct t s; struct s{}t; main(){}
(D) struct t s; struct t{}; main(){}

19. What would be the size of the following union declaration? 1 2 5

```
union srm
{
double a;
 int b[10];
char c;
}u;
```

(Assuming size of double = 8, size of int = 2, size of char = 1)

(A) 2 (B) 29
(C) 20 (D) 8

20. Analyze the result of the following FILE declaration? 1 3 5

```
#include<stdio.h>
int main()
{
    char ch;
    FILE *fpl, *fp2;
    fpl = fopen("srml.txt", "w++");
    fp2 = fopen("srm2.txt", "w' );
    printf("Thank you. ");
    fclose(fp1 ,fp2);
    return 0
}
```

(A) Thank you. (B) Prints nothing
(C) Compilation error (D) Error: file mode is wrong

PART – B (5 × 4 = 20 Marks) Marks BL CO
Answer **ANY FIVE** Questions

21. List out the various Data types with the number of bytes required and ranges used in c. 4 1 1

22. Consider the following statement and justify with example. "The ternary operator can replace the if statement in C". 4 2 1

23. Develop a program in C that calculates the sum of the digits of an integer. For example, the sum of the digits of the number 2155 is 13 (i.e. 2+1+5+5). 4 3 2

24. Explain the one dimensional array and its elements in memory allocation. 4 4 3

25. Construct a C program to find the addition of two given matrices. 4 3 4

26. Write a C program to print all permutations of a given string using pointers. (eg. srm, rsm,mrs,rms,smr,msr). 4 3 4

27. Write note on: 2 5
(i) file modes
(ii) fputs()

PART – C (5 × 12 = 60 Marks)

Answer **ALL** Questions

		Marks	BL	CO
28. a.i.	Write a C program to convert temperature given in Celsius to Fahrenheit F=C * 9/5 + 32.	6	3	1
ii.	Write an algorithm for generating the pay slip of an employee working in SRM College. Input for the process will be the basic pay for the employee. Gross salary is calculated as Basic Pay + HRA + DA. HRA is fixed as 30% of basic pay and DA as 80% of basic pay. Calculate the gross salary.	6	3	1
	(OR)			
b.i.	Give the significance of the L value and R value in expressions.	4	3	1
ii.	Elaborate the importance of various operators used in C language.	8	3	1
29. a.i.	Briefly explain various looping statements in C with suitable example.	8	3	2
ii.	Differentiate the unconditional control statements "continue" and "break".	4	3	2
	(OR)			
b.i.	Write a program to perform arithmetic operations using switch statement.	6	3	2
ii.	Write a C program to find the largest and smallest values in an array with their position.	6	3	2
30. a.i.	Explain in details about String Functions: gets(), puts(), getchar(), putchar(), printf(), with an example.	6	2	2
ii.	Write a C program to count number of vowels in a string.	6	3	2
	(OR)			
b.i.	Write a C program to swap two numbers using call-by-reference.	6	3	2
ii.	Discuss in detail about passing of arguments to the two dimensional array in C with example.	6	3	2
31. a.i.	Write a C program to check whether the given number is prime or not using function.	6	3	4
ii.	Find the factorial of 10 using function recursion.	6	3	4
	(OR)			
b.i.	Short notes on Passing Array Element to Function with an example.	4	2	4
ii.	Write the concepts behind the pointers, Void Pointers and size of Void Pointers with suitable example.	8	2	4
32. a.i.	Give the example of Structure using typedef, Accessing members of structure.	2	2	5

ii.	What is Nested structure? Illustrate the important of accessing elements in a structure array with the detailed program?	10	2	5

(OR)

b.i.	Write a c program to insert a line at the end of text file.	6	3	5
ii.	Write a program to copy the content from one file to another file.	6	3	5

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