Reg. No.															

B.Tech/ M.Tech (Integrated) DEGREE EXAMINATION, JANUARY 2024

First Semester

21CSS101J – PROGRAMMING FOR PROBLEM SOLVING

(For the candidates admitted from the academic year 2022-2023 onwards)

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** and **Part - C** should be answered in answer booklet.

Time: 3 Hours | Max. Marks: 75

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

Answer **ALL** Questions

1. What is the range of values that can be stored by int datatype in C? | 1 | 1 | 1

(A) -(2^31) To (2^31) -1 (B) -256 To 255

(C) -(2^64) To (2^64) -1 (D) 0 To (2^31)-1

2. Identify the correct output of the following pseudocode. | 1 | 1 | 1

```
int i, j
set i =15, j=7
i = i mod (i-3)
j = j mod(j-3)
i = i mod 1
j = j mod 1
print i+j
```

(A) 12 (B) 0

(C) 3 (D) 2

3. What is the output of the following pseudocode? | 1 | 1 | 1

```
Int array [ ] = {10, 20, 60, 30, 40}
Int i, j
Set j = 0
Set i = array[0]+array[3]
Print i.
```

(A) 50 (B) 40

(C) 20 (D) 30

4. What will be the output of the following pseudocode? | 1 | 1 | 4

```
Integer a=4, b=4, c=2
a = b+c
c = a -b
c = c+a
c = b+c
b = b+c
Print a, b, c
```

(A) 16 6 12 (B) 6 16 12

(C) 12 6 16 (D) 6 6 16

5. _____ is appropriate with respect to size of the data types. | 1 | 1 | 2

(A) char<int<double (B) char>int>float

(C) int>char>float (D) double>char>int

6. What will be the output of the program? | 1 | 1 | 2

```
int main ( ) {
int x= 10, y = 20, z = 30;
printf (" x = %d, y = %d, z = %d \n", x, y, z);
{
 int x = 40;
 float y = 50;
 printf(" x = %d, y = %f, z = %d \n", x, y, z);
```

```
 {
   int z = 60;
   printf(" x = %d, y = %f, z = %d \n", x, y, z);
  }
 }
}
```

(A) x=10, x=40, x=40
y=20, y=50.00, y=50.00
z=30 z=30 z=60

(B) x=10, x=10, x=10
y=20, z= 30, y=20, z=30, y=20, z=30

(C) x=10, x=10, x=10
y=20, y=50.00, y= 50.00
z=30 z=30 z=60

(D) x=10, x=10, x=40
y=20, z=30, y=20, z=30, y=50.00 z=60

7. Refer the below C program. Find the output of this program? 1 1 2

```
/ * global variable declaration */
int g = 3;
int main () {
/ * local variable declaration */
int g = 2;
printf ("g = %d\n", g);
g=g+5;
printf ("g = %d\n", g);
return 0;
}
```

(A) g=3, g=8
(B) g=3, g=7
(C) g=2, g=7
(D) g=2, g=8

8. Which of the following statements are correct about the program? 1 1 2

```
#include<stdio.h>
 int main()
{
unsigned int num;
int i;
scanf ("%u", &num);
for(i=0;i<16;i++)
{
printf("%d",(num<<i & 1<<15)?1:0);
}
return 0;
}
```

(A) It prints all even bits from num
(B) It prints all odd bits from num
(C) It prints binary equivalent num
(D) Error

9. What is the output of the following C program? 1 1 3

```
#include<stdio.h>
int main()
{
int a = 0;
a = 25 < 21? 4:3;
printf("%d", a);
return 0;
}
```

(A) 3
(B) 0
(C) 7
(D) 4

10. What will be the output of the program? 1 1 3

```
#include <stdio.h>
void show();
int main() {
show();
printf("SRM ");
return 0;
}
```

```
void show() {
printf("PPS");
}
```

(A) PPS SRM (B) SRM PPS
(C) PPS (D) SRM

11. What will be the output of the program? 1 1 3

```
#include<stdio.h>
 #include<string.h>
int main()
{
 printf("%d\n", strlen(" 123456"));
return 0;
}
```

(A) 6 (B) 12
(C) 7 (D) 2

12. Select the expected output for the following code: 1 1 3

```
# include<stdio.h>
 int main()
{
char z = 'a' + 1;
printf("%d", z);
return 0;
}
```

(A) 97 (B) 90
(C) 99 (D) 98

13. Choose the correct statement? 1 1 4

(A) Python programs can be executed only by writing them into files
(B) Python source code is written and saved in a file with .py extension
(C) Runtime errors are like grammatical errors in English
(D) Python is a middle-level programming language

14. Match the output for the given code. 1 1 4

```
print("where", "there", "is", "a", "will," , "there", "is", "a", "way")
```

(A) Where there is a will there is a way.
(B) Where there is a will There is a way
(C) where there is a will, there is a way
(D) where there is a will, there is a way.

15. Keyword used for function in Python language is 1 1 4

(A) function (B) def
(C) fun (D) Define

16. 1 1 4

```
a = [1, 2]
print (a * 3)
```

Find the output of the above python code

(A) [1, 2, 1, 2, 1, 2] (B) 1, 2
(C) 3, 6 (D) Error

17. Find the output of the following Python code. 1 1 5

```
i = 1
while true
 if i % 3 = = 0;
  break
 print (i)
i + = 1
```

(A) 1 2 3 (B) Error
(C) 1 2 (D) 1 1

18. In Pandas,data frame can be defined as _____ 1 1 5

(A) pandas.DataFrame(data, index, dtype, copy)
(B) pandas.DataFrame(data, index, rows, dtype, copy)
(C) pandas_DataFrame(data, index, columns, dtype, copy)
(D) pandas.DataFrame(data, index, columns, dtype, copy)

19.	How to convert numpy array to a list? (A) array.list() (B) array.list (C) list.array() (D) list(array)	1	1	5
20.	Google Colaboratory is mostly not suitable for _____. (A) Machine Learning (B) Data Analytics (C) Artificial Intelligence (D) Large datasets	1	1	5

PART – B (4 × 10 = 40 Marks)
Answer **ANY FOUR** Questions

		Marks	BL	CO
21.i.	Give an overview of the basic structure of a C program.	5	1	1
ii.	Write notes on Algorithm, Flow chart, and Pseudocode with relevant examples.	5	1	1
22.i.	Write a C program to generate the following pattern * * * * * * * * * * * * * * *	5	2	2
ii.	Difference between while and do while.	5	2	2
23.i.	Draw flowchart and write a C program to convert the temperature given in Celsius to Fahrenheit. F=C * 9/5 + 32 Program (3 Marks) Flow chart (2 Marks)	5	3	2
ii.	Draw flowchart and write a C program to compute the salary of an employee in a company and write an algorithm for generating the pay slip of an employee working in XYZ Company. 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. Program (3 Marks) Flow chart (2 Marks)	5	3	2
24.i.	Explain the concept of function call by value with a sample program.	5	3	3
ii.	Write a C program to find the largest of three numbers.	5	3	3
25.i.	Develop a Python program to describe the basic Tuple operations.	5	3	4
ii.	Using the concept of control structure determine the even numbers in a given range using Python.	5	3	4
26.	Explain the Operations that can be performed on a Python Data Frame.	10	3	5

PART – C (1 × 15 = 15 Marks)
Answer **ANY ONE** Question

		Marks	BL	CO
27.i.	Explain the input and output statements in C programming with relevant examples.	5	2	2
ii.	Illustrate the scope of the variable with examples.	5	2	2
iii.	Define and give an example for the following 1. Variable 2. Keyword 3. Identifier 4. Token 5. Constant	5	2	2
28.i.	Illustrate how to insert values in a dictionary. Write the Python code for the same.	5	3	5
ii.	How do you slice a list in Python? Give an example.	5	3	5
iii.	List various features of NumPy.	5	3	5

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