**B.Tech/ M.Tech (Integrated) DEGREE EXAMINATION, JANUARY 2023**
First Semester

**21CSS101J – PROGRAMMING FOR PROBLEM SOLVING**
*(For the candidates admitted from the academic year 2022-2023)*

**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)**
Answer **ALL** Questions

| | Marks | BL | CO | PO |
|---|---|---|---|---|

1. Find the output for the following statement.
   printf ("%d", sizeof ("Hello"));   (Marks 1, BL 1, CO 1, PO 1)
   (A) 5           (B) 6
   (C) 1           (D) 2

2. What is the output for the following expression in C?   (Marks 1, BL 2, CO 1, PO 1)
   n = 5 – 2 * 7 – 9;
   (A) –18         (B) 12
   (C) 9           (D) 1

3. Determine the correct output.   (Marks 1, BL 2, CO 1, PO 1)
   float c = 3.14;
   prinf ("%f", c%2);
   (A) 1.0         (B) 0
   (C) Compile error   (D) 0.14

4. Find the meaning of following statement:   (Marks 1, BL 2, CO 1, PO 2)
   f = (x > y)? x : y;
   (A) f points to max of x & y     (B) f points to min of x & y
   (C) f points to addition of x & y   (D) Compile error

5. The 'continue' statement cannot be used with   (Marks 1, BL 1, CO 2, PO 1)
   (A) while       (B) do while
   (C) for         (D) switch case

6. Find the correct one to access the 3ʳᵈ element in an array.   (Marks 1, BL 1, CO 2, PO 1)
   (A) * a + 3     (B) * (a + 3)
   (C) * (* a + 3)   (D) & (a + 3)

7. Find the output for the following C code.   (Marks 1, BL 2, CO 2, PO 2)
   for (K = 1; K < = 5; K + +);
   {
       printf ("%d", K);
   }
   (A) 1 2 3 4 5   (B) 1 2 3 4
   (C) 6           (D) 5

8. Size of integer pointer and character pointer in C for 16 bit processor is
   (A) 2    1
   (B) 2    2
   (C) 4    1
   (D) 4    2

9. Expected output for the following code is
   char str [ ] = {'g', 'l', 'o', 'b', '\0', 'a', 'l'};
   printf ("%s", str);
   (A) global
   (B) glob
   (C) globloal
   (D) al

10. The operator used to get value at an address stored in a pointer variable is
    (A) *
    (B) &
    (C) &&
    (D) ~

11. The keyword used to transfer the control from a function back to the calling function in C is
    (A) goto
    (B) back
    (C) return
    (D) goback

12. If both the strings are same, a string function strcmp( ) returns _____.
    (A) 1
    (B) −1
    (C) 2
    (D) 0

13. Keyword used for function in Python language is
    (A) function
    (B) def
    (C) fun
    (D) define

14. The following python code will print _____, _____.
    print (type (5/2))
    print (type 5//2))
    (A) float    int
    (B) float    float
    (C) int    float
    (D) int    int

15. Find the length of the following list in python
    len (["hello", 2, 4, 6])
    (A) 8
    (B) 6
    (C) 4
    (D) 3

16. Representation of python tuple is
    (A) { }
    (B) {1, 2, 3}
    (C) [1, 2, 3]
    (D) (1, 2, 3)

17. Number of elements present in the series S1 is
    S1 = pd.series (range (1, 6))
    print(S1)
    (A) 4
    (B) 5
    (C) 6
    (D) 7

18. Numpy is often used along with packages like _____.
    (A) Node.js
    (B) Matplotlib
    (C) SciPy
    (D) Both (B) and (C)

19. Size attribute in Numpy is used to find _____.
   (A) shape
   (B) date and time
   (C) objects
   (D) number of items

1  1  5  1

20. Library used to create data frame is
   (A) Sklearn
   (B) Data frame
   (C) Pandas
   (D) Random

1  2  5  2

## PART – B (5 × 8 = 40 Marks)
### Answer ALL Questions

| | Marks | BL | CO | PO |
|---|---|---|---|---|

21. a. Describe various storage classes in C programming with suitable example.

8  3  1  2

**(OR)**

b. Describe about pre-increment, post-increment, pre-decrement, post-decrement, conditional operators, each with suitable example.

8  3  1  2

22. a.i. Write a C program to find the factorial of a given number.

4  3  2  2

ii. Write the necessary conditions for switch-case in C.

4  4  2  2

**(OR)**

b. Explain about
   (i) void pointer with an example in C
   (ii) NULL pointer with an example in C

4+4  3  2  2

23. a. Write a C program to find whether the given string is palindrome or not. Explain the string functions used in this program.

8  4  3  2

**(OR)**

b. Explain the concept of passing the array as an argument to function. Illustrate with C program to find the sum two matrices.

8  4  4  2

24. a. Describe any four operations performed on tuples in Python programming.

8  3  5  2

**(OR)**

b. Write a Python program to print the following Floyd triangle.
```
1
2 3
4 5 6
```

8  3  5  2

25. a.i. Explain the significant features of the pandas library.

4  4  5  2

ii. Write a Python program to create a Numpy array filled with all zeros.

4  3  5  2

**(OR)**

b.i. List out various features of Numpy.

4  4  5  2

ii. Describe about the different types of data structures in pandas.

| | Marks | BL | CO | PO |
|---|---|---|---|---|

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

26.i. The National Highways Department announces a scheme for four wheeler riders in the toll gate for its 50<sup>th</sup> year celebration. If the vehicle number is divisible by both 7 and 3, then they should pay one-third of the fee. If the vehicle number is divisible by 7 or 3, then they should pay half of the fee. Otherwise they have to pay full fees. Write a C program for the given scenario.

*(8  3  2  2)*

ii. Write a C program to replace all vowels with star (*) and print the output.

*(7  3  3  2)*

27.i. Write a Python program to check whether the given list is in sorted order or not. If the given list is in sorted order then print true, else print false.

*(8  4  5  2)*

ii. Write a python program to create two sets Set1 and Set2 by getting input from user and determine whether the given sets Set1 and Set2 are disjoint or not.

*(7  4  5  2)*

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