B.Tech/ M.Tech (Integrated) DEGREE EXAMINATION, JUNE 2023

First & Second 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

Marks BL CO PO

PART – A (20 × 1 = 20Marks)

Answer **ALL** Questions

1 | 1 | 1 | 1

1. The expression $4 + 6 / 3 * 2 - 2 + 7 \% 3$ evaluates to
   - (A) 3
   - (B) 4
   - (C) 6
   - (D) 7

1 | 1 | 1 | 1

2. Which of the following is appropriate position for writing comments in C programming?
   - (A) Anywhere in the code
   - (B) Before calling the main function
   - (C) Before header file section
   - (D) Before variable declaration section

1 | 1 | 1 | 1

3. Which is correct with respect to the size of the data types?
   - (A) char > int > float
   - (B) int > char > float
   - (C) char < int < double
   - (D) double > char > int

1 | 1 | 1 | 1

4. Which of the following is not logical operator?
   - (A) &
   - (B) &&
   - (C) ||
   - (D) !

1 | 1 | 2 | 1

5. What would be the equivalent point expression for referring the array element $a[i][j][k][l]$
   - (A) $((((a+i)+j)+k)+l)$
   - (B) $*(*(*(*(a+i)+j)+k)+l)$
   - (C) $(((a+i)+j)+k+l)$
   - (D) $((a+i)+j+k+l)$

1 | 1 | 2 | 1

6. Which of the following cannot be checked in a switch-case statement?
   - (A) Character
   - (B) Integer
   - (C) Float
   - (D) Enum

1 | 1 | 2

7. What is the output of the following program?
```
# include <stdio.h>
int main ( )
    {
        int a ;
        switch (a)
```

```
    {
printf ("ABCD");
    }
    printf ("EFGH");
}
```

(A) ABCDEFGH
(B) EFGH
(C) No output
(D) Compiler error

8. The keyword 'break' cannot be simply used within _____ .
(A) do_while
(B) if_else
(C) for
(D) while

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. A function which calls itself called a _____
(A) Self function
(B) Auto function
(C) Recursive function
(D) Static function

11. What is the output of C program?
```
#include <stdio.h>
    {
        int b = 25; // b memory location = 1234;
        int *p = b;
        printf ("%d %d", b, p);
        return 0;
    }
```

(A) 25   1234
(B) 25   0
(C) 25   25
(D) Compiler error

12. 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

13. Which of the following is the correct extension of the python file?
(A) .python
(B) .pl
(C) .py
(D) .p

14. Choose the correct option with respect to python?
(A) Both tuples and lists are mutable
(B) Both tuples and lists are immutable
(C) Tuples are immutable while lists are mutable
(D) Tuples are mutable while tests are immutables

15. Suppose list1 is [1, 3, 2], what is list1 * 2?
(A) [2, 6, 4]
(B) [1, 3, 2, 1, 3]
(C) [1, 3, 2, 1, 3, 2]
(D) [1, 3, 2, 3, 2, 1]

16. Which of these is not a bit wise operator?
    (A) &
    (B) & =
    (C) ! =
    (D) < =

17. What is the output of the following code?
    ```
    import numpy as np
    a = np. a range (10)
    print (a [2:5])
    ```
    (A) [2, 3, 4]
    (B) [0, 1, 2]
    (C) [5, 6, 7]
    (D) [2, 4, 6]

18. What does Numpy stand for?
    (A) Numerical python
    (B) Natural python
    (C) Numerical programe
    (D) Nonlinear python

19. Which library is to be imported for creating data frame?
    (A) Python
    (B) Data frame
    (C) Pandas
    (D) Random

20. Which of the following attribute of data frame is used to display data type of each column in data frame?
    (A) Dtypes
    (B) DTypes
    (C) dtypes
    (D) datatypes

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

	Marks	BL.	CO	PO
21. a. List down various storage classes in C. Explain about storage class with example.	8	2	1	1
(OR)				
b. Write a suitable C program to explain the pre and post increment operator.	8	2	1	1
22. a. Write a C program to get 3 numbers as input from the user and print the biggest number among the three using if condition.	8	1	2	1
(OR)				
b. Write a C program to compute the sum of the first 10 natural numbers.	8	1	2	1
23. a. Differentiate getchar ( ), putchar ( ) with a suitable C programming.	8	2	3	1
(OR)				
b. Explain with a suitable example: call by value and call by reference.	8	1	3	1
24. a. Write the various data types in python with example.	8	1	4	1
(OR)				
b. Write the input and output functions in python with example.	8	1	4	
25. a. Write short notes on numpy array attributes.	8			
(OR)				

b. Explain with an example numpy indexing.

8 2 5 1

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

Marks BL CO PO

26. Kannan's basic salary is given as input through the keyboard. His D.A is 35% of basic salary, house rent allowance is 27% of basic salary, and TA is 10% of basic salary. Write a C program to calculate his gross salary. Also draw the flow chart and algorithm.

15 2 1 2

27. Develop a C program to read a three digit number from the user and multiply the last digit and second last digit. Also write the algorithm and flow chart.

15 2 2 2

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