B.Tech/M.Tech(Integrated) DEGREE EXAMINATION, DECEMBER 202

First Semester

21CSS101J - PROGRAMMING FOR PROBLEM SOLVING

(For the candidates admitted during 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 ove 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:

PART - A (20 × 1 = 20 Marks)
Answer all Questions

Marks BL C

1. The special character ____ can be used to declare a variable in C programming.   1   1   1
   (A) anything   (B) nothing
   (C) underscore   (D) hyphen

2. which of the following is the default storage class for local variables in C   1   1   1
   programming language?
   (A) auto   (B) register
   (C) static   (D) extern

3. int ___ int b=6; int x=a/b; printf("%d",x);   1   2   1
   _ output of the above code snippet:
                                        (B) 5.5
                                        (D) 0.5

4. ___ te the output of the following C code snippet: 1   2   1
   ```
   int s1 = -10;
   int Q = (s1++, ++s1);
   printf("%d\n", Q);
   ```
   (A) -8   (B) 11
   (C) 12   (D) -2

5. Rewrite the following code to use the conditional operator rather than using an if-   1   2   2
   else.
   if (age>=18) then print eligible to vote. Otherwise print not eligible to vote.
   (A) (age>=18)? : printf("eligible for   (B) (age>=18) (printf("eligible for
       voting") , printf("not eligible for   voting")) ? (printf("not eligible for
       voting");   voting"));
   (C) (age>=18)? (printf('eligible for   (D) (age>=18)? (printf("eligible for
       voting')) ; (printf('not eligible for   voting")) : (printf("not eligible for
       voting'));   voting"));

6. Choose the correct answer for the following C code: 1   2   2
   ```
   #include<stdio.h>
   void main()
   {
   for(int i=3; i<=6; i=i+2)
   { printf("i=%d",i);
   break;
   }
   }
   ```
   (A) i=3; i=5   (B) i=3; i=4; i=5; i=6
   (C) error   (D) i=3

7. Select the output for the following C program:
```c
#include<stdio.h>
void main()
{
    for(int i=1; i<5; i=i+4)
    { printf("i=%d",i);
      continue;
    }
}
```
(A) i=1; i=5   (B) i=1;
(C) i=1; i=4;   (D) error

8. When you run the following code, how many times will the message "Welcome" appear on the screen?
```c
#include<stdio.h>
void main()
{ int k=5;
  do
  {
        printf("Welcome\n");
            11: k=k-1;
            goto 11;
  }while (k<=2);
}
```
(A) one time   (B) two times
(C) three times   (D) many times

9. Which keyword is used to declare character array in C?
(A) arr   (B) string
(C) arr char   (D) char

10. What will be the output of the following when collects the input as HAVE A GOOD DAY?
```c
#include <stdio.h>
void main()
{
  char a[5];
  scanf("%s",a);
  printf("%s",a);
}
```
(A) HAVE A GOOD DAY   (B) HAVE
(C) Nothing will be printed (D) error

11. If the two strings are identical, then strcmp() function returns
(A) -1   (B) 1
(C) 0   (D) yes

12. Which is the correct option when collecting string variable s1 values as "ABCD" in the C programming language.
(A) string s1 = "ABCD";   (B) char s1[10]="ABCD";
(C) char s1="ABCD";   (D) string s1[10]="ABCD";

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

14. What will be the output of the following function in Python?
    round(4.576)
(A) 4   (B) 5
(C) 4.5   (D) 4.6

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15. Which of the following solution is correct when converting the given string, name="ABDUL KALAM" to lower case in Python?
    (A) print(name.lower())
    (B) print(name.toLower())
    (C) print(toLower(name))
    (D) print(lower(name))

16. Which one of the following is used to get the current time in Python?
    (A) import time;
        print(time.asctime(time.localtime(time.time()))
    (B) import Time; Print(localTime(time))
    (C) import Time;
        Print(Time.asctime(localTime.time(time)))
    (D) import time;
        print(localtime(time))

17. What is the output of the given Python code?
```
x = '10'
y = '20'
result = eval('x + y')
print(result)
```
    (A) xy
    (B) 30
    (C) 1020
    (D) x+y

18. Select the appropriate output of the provided Python code.
```
import numpy as np
arr = np.zeros((1,2), dtype = int)
print(arr)
```
    (A) [[1 2]]
    (B) [[1 1],[2 2]]
    (C) [0 1]
    (D) [[0 0]]

19. What will be the output of the following Python code?
```
import pandas as pd
s =pd.Series([1,2,3,4,5],index= ['a','b','c','d','e'])
print(s['c'])
```
    (A) 5
    (B) 'c'
    (C) 3
    (D) D

20. To count the total number of elements in a dataframe in Python, we can use:
    (A) len
    (B) count
    (C) size
    (D) Values

PART - B (4 × 10 = 40 Marks)
Answer any 4 Questions

	Marks	BL	CO

21. Venkat owns a boutique. He is dealing with an excel file that contains attributes such as the customerID, the Quantity purchased by the customer, the Amount of each item, and the Total-price. In his C programme, he wishes to define the aforementioned attributes as variables with appropriate data types such as character-array, integer, float, and double and assign sample values to them using assignment statements. Find the size of the various data types of the specified variables and calculate Total-price. Assist him in writing a C programme for the mentioned purpose.   10   2   1

22. Write a C program to calculate the following series using for loop.
$Sum = 1/3^2 + 2/4^3 + 3/5^4 + 4/6^5 + ...$ and print the result along with the series as the given format: when n=4; $1/3^2 + 2/4^3 + 3/5^4 + 4+6^5 = 0.14768$ similarly, print the result according to the nth term.   10   3   2

23. Write a C program for the following using user-defined function with arguments: Collect four student's names such as "Dheetshitha", "Dharshika", "Jai" and "Dev" while declaring the variable "Names" using character array and assignment statement. Get any name from the user and then check whether the given name entered by the user is available in the specified character array. If it is available, then print the appropriate position of the given name otherwise print position as -1   10   3   3

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4. Hema runs a fruit shop. She collects the customer-name with age and purchased fruit names. Help her to save the sample collected information using the following Python data types: 10   2   4
   - i)   list
   - ii)   tuple
   - iii)   dict
   - iv)   set
   - v)   boolean

25. Distinguish between PANDAS with NUMPY using different comparison parameters in Python programming language.   10   2   5

26. Lakshmi writes a sentence in her notebook. She wants to count the number of uppercase characters, lowercase characters, digits and special symbols in her sentence. Help her to find using a C program.   10   3   3

                                                 Marks   BL   CO

PART - C (1 × 15 = 15 Marks)
Answer any 1 Questions

27. Two examinations were conducted for three groups of students namely Team 1, Team 2, Team 3 and their data on average of marks for the subjects Tamil, English, Science and Mathematics are given below in the form of matrices X and Y. Find the total marks of both the examinations for all the three groups using C programming language and print the results.   15   3   2

$$X = \begin{matrix} \text{Team1} \\ \text{Team2} \\ \text{Team3} \end{matrix} \begin{pmatrix} 22 & 15 & 14 & 23 \\ 50 & 62 & 21 & 30 \\ 53 & 80 & 32 & 40 \end{pmatrix} \qquad Y = \begin{matrix} \text{Team1} \\ \text{Team2} \\ \text{Team3} \end{matrix} \begin{pmatrix} 20 & 38 & 15 & 40 \\ 18 & 12 & 17 & 80 \\ 81 & 47 & 52 & 18 \end{pmatrix}$$

28. Raman has two boxes, both of which are coloured blue and green. The blue colour box only holds two chocolates, whereas the green box holds ten. He wants to use the quantity of chocolates in his boxes to do mathematical operations like addition, subtraction, and multiplication. Help him by implementing the following user-defined functions in a C program: 15   3   3
   - i.   void add();
   - ii.   void subtract(int, int);
   - iii.   int multiply(int, int);

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