| **Registration Number** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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**SRM Institute of Science and Technology** 

**College of Engineering and Technology**

**SCHOOL OF COMPUTING**

SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamil Nadu

**Academic Year: 2024-25 (ODD)**



**Test: CT1 Date**: 30-09-2024

**Course Code & Title: 21CSS101J Programming for Problem Solving Duration:** 1hr 40 mins

**Year &Sem: I/I Max. Marks: 50**

**Course Articulation Matrix: *(to be placed)***

| **S.No** | **Course**  **Outcome** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | **CO1** | **2** | **3** |  |  |  |  |  |  |  |  |  | **2** |
| **2** | **CO2** | **2** | **3** |  |  |  |  |  |  |  |  |  | **2** |
| **3** | **CO3** | **2** | **3** |  |  |  |  |  |  |  |  |  | **2** |
| **4** | **CO4** | **2** | **3** |  |  |  |  |  |  |  |  |  | **2** |
| **5** | **CO5** | **2** | **3** |  |  |  |  |  |  |  |  |  | **2** |

**Course Outcomes (CO):**

**CO-1:** Solve problems through computer programming. Express the basic data types and variables in C

**CO-2:** Use appropriate data types in simple data processing applications. To create programs using the concept of arrays.

**Part A (10\* 1 = 10 Marks)**

| **Sl.No** | **Question** | **Marks** | **BL** | **CO** | **PO** | **PI Code** |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | D) compiler dependent | **1** | **1** | **1** | **1** | **1.4.1** |
| 2 | B) 2ndValue | **1** | **1** | **1** | **1** | **1.3.1** |
| 3 | A) 15 | **1** | **2** | **1** | **2** | **2.2.3** |
| 4 | c) 4 | **1** | **2** | **1** | **2** | **2.2.4** |
| 5 | a) 1 | **1** | **2** | **1** | **2** | **2.4.1** |
| 6 | B. False | **1** | **2** | **2** | **2** | **2.1.2** |
| 7 | A. 21 22 23 24 | **1** | **2** | **2** | **2** | **2.4.2** |
| 8 | C) 20 | **1** | **2** | **1** | **2** | **2.4.2** |
| 9 | A) 10 10 | **1** | **2** | **1** | **2** | **2.4.2** |
| 10 | B) 1 | **1** | **2** | **1** | **2** | **2.4.2** |

**Part-B (5 x 4= 20 Marks)**

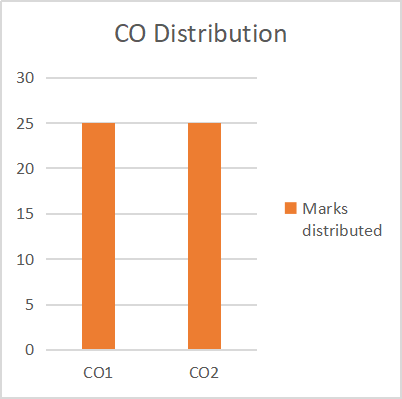
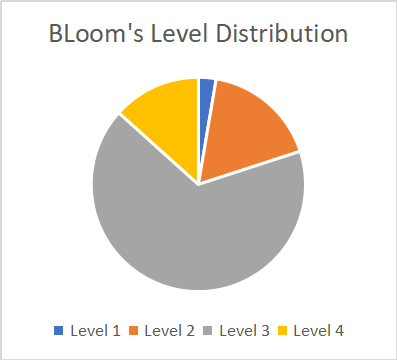
**Answer all the questions**

| **Sl. No** | **Question** | **Marks** | **BL** | **CO** | **PO** | **PI Code** |
| --- | --- | --- | --- | --- | --- | --- |
| **11** | With suitable examples, discuss the sections of C.   * **Preprocessor Directives(1)** * **The main() Function(1)** * **Variable Declarations(1)** * **Statements(1)** | **4** | **2** | **1** | **1** | **1.4.1** |
| **12** | You are organizing a fundraising event. You have two donation options for your participants:  **Option A:** A flat donation of $50.  **Option B:** A donation of $10 for each attendee, but only if there are more than 5 attendees.   * **Input attendees and option (1)** * **Calculate total donation using logical & relational operators (2)** * **Display the output (1)** | **4** | **3** | **1** | **1** | **1.3.1** |
| **13** | **Debug the code given below so as to generate the desired output**  **\* \* \* \***  **\* \* \***  **\* \***  **\***  int main() {  int i,j;  for(i=4;i>=0;i--)  {  for(**j=1**;j<=i;j++)  {  printf**("\* "**);  }  printf("\n");  }  } | **4** | **4** | **2** | **2** | **2.4.2** |
| **14** | **Fill the code given and explain how the desired output will be generated.**  #include<stdio.h>  int main()  {  int num, sum=0, r, temp;  printf(“Enter a no:”);  scanf(“**%d”**,&num);  temp=no;  while(**temp!=0**)  {  r=temp%10;  sum+=**(r\*r\*r)**;  temp=**temp/10**;  }  if(**sum==num**)  printf(“%d is Armstrong”,num);  else  printf(“%d is not Armstrong”,num);  return 0;  } | **4** | **4** | **2** | **2** | **2.4.2** |
| **15** | Write a C program that swaps two variables without using temporary variables.   * **Input 2 values (1)** * **Using + and - operator swap the values (2)** * **Display the swapped values (1)** | **4** | **3** | **1, 2** | **2** | **2.1.3** |

**Part C (2 \* 10 = 20 Marks)**

| **Sl.No** | **Question** | **Marks** | **BL** | **CO** | **PO** | **PI Code** |
| --- | --- | --- | --- | --- | --- | --- |
| **16** | A company has a budget of $10,000 for a project. If they plan to divide this budget equally among 8 departments, how much money will each department receive, and how much will remain unallocated? Implement this using C.   * **Initialize total budget and departments (2)** * **Calculate - amount per department (3)** * **Calculate Remaining budget (3)** * **Display the remaining budget (2)** | **10** | **3** | **1** | **2** | **2.1.3** |
| **(OR)** | | | | | | |
| **17** | A can of paint covers 350 square feet. If you want to paint a wall that is 1,050 square feet, how many cans of paint will you need to buy? Implement this using C.   * **Initialize wall area and coverage/can (2)** * **Calculate the cans needed using arithmetic and assignment operators (6)** * **Display the cans needed (2)** | **10** | **3** | **1** | **2** | **2.1.3** |
| **18** | In a warehouse, you need to track the stock levels of various products. If a product’s stock level falls below 10, it should be flagged for reordering. Write a C program for this scenario.   * **Declare variables for name, stock level (2)** * **A special value to terminate the reading of input (2)** * **loop and read until the special value is input (2)** * **Check if level is <10 and display appropriate messages(4)** | **10** | **3** | **2** | **2** | **2.1.3** |
| **(OR)** | | | | | | |
| **19** | In a grading system, if a student's score is less than 60, they should receive an additional 5 points as a "boost." Develop a C program for this.   * **Declare appropriate variables (1)** * **Reading the number of students (2)** * **for every student, read the score (2)**   + **If score <60 add 5 to score (3)**   + **Display the score (2)** | **10** | **3** | **2** | **2** | **2.1.3** |

**Course Outcome (CO) and Bloom’s level (BL) Coverage in Questions**

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