

# CL-1002: Programming Fundamentals

Serial No:

**Sessional Exam-I**

**Total Time: 1 Hour 20 minutes**

**Total Marks: 50**

Friday, 10th September, 2023

**Lab Instructor**

Muhammad Ammar Masood

Signature of Invigilator

Student Name

Roll No.

Course Section

Student Signature

**DO NOT OPEN THE QUESTION BOOK OR START UNTIL INSTRUCTED.**  
**Instructions:**

1. Attempt the questions on the provided system. Attempt all of them. Read the question carefully, understand the question, and then attempt it.
2. No additional sheet will be provided for rough work.
3. After being asked to commence the exam, please verify that you have **two (2)** different printed pages including this title page. There are a total of **2** questions.
4. **Please make sure to submit a zipped folder(.zip) named *yourRollNumber (23xxxx)*. Please note that there is NO dash(-) and alphabet(i) in the folder name. The folder should contain only .cpp files. The questions must be named as q1.cpp & q2.cpp.**
5. Submission will only be accepted on Google Classroom. Failure to submit according to submission guidelines will result in deduction of 20% marks.
6. Late submission will not be accepted.
7. Please note that you have to write the submission time at GCR on the front page of the question paper.

	<b>Q-1</b>	<b>Q-2</b>
<b>Marks Obtained</b>		
<b>Total Marks</b>	<b>25</b>	<b>25</b>

## Question 1 [25 Marks]

Write a C++ program to draw the following pattern using loop(s). You have to input the number of rows. The number of rows will be an **even number** and greater than equal to four (4,6,8,10,12,14...). There is no need for input validation. Following are the sample outputs

**Note: 10 bonus marks for solving a problem with a single loop. Please note that bonus will be given only on correct output.**

Rows = 6	Rows = 10	Rows = 14
<pre> *****  \     /   \   /    \ /    \ /   / \  /   \ *****         </pre>	<pre> *****  \     /   \   /    \ /    \ /   /   \  /     \ *****         </pre>	<pre> *****  \     /   \   /    \ /    \ /   /     \  /       \ *****         </pre>

### For Examiner Use Only

	Total Marks	Obtained marks	Remarks
Code Indentation & Readability Variable Naming Convention	1+1+1		
Correct Output	15		
Logic and Implementation	7		
Bonus (if applicable)	10		

## Question 2 [25 Marks]

Write a C++ program to draw the following pattern using loop(s). You can't just print it with a cout statement. You have to input the number of rows. The number of rows will be in range [3, 4 & 5] only. But your program must be generic. There is no need for input validation. Carefully look at the following sample output, there is a hint given.

**Note: 10 bonus marks for solving a problem with a single loop. Please note that bonus will be given only on correct output.**

rows = 5	rows = 4	rows = 3
<b>01234</b> <b>50123</b> <b>54012</b> <b>54301</b> <b>54320</b>	<b>0123</b> <b>4012</b> <b>4301</b> <b>4320</b>	<b>012</b> <b>301</b> <b>320</b>

### For Examiner Use Only

	Total Marks	Obtained marks	Remarks
Code Indentation & Readability Variable Naming Convention	<b>1+1+1</b>		
Correct Output	<b>15</b>		
Logic and Implementation	<b>7</b>		
Bonus (if applicable)	<b>10</b>		