Student Name :
Student ID :

Green University of Bangladesh

Department of Computer Science and Engineering

Lab Final Assessment, Fall 2023

Course Code: CSE 304 Course Title: Microprocessors and Microcontrollers Lab

Time: 1 Hour Full Marks:30

Answer all the following questions:

[The values on the right-hand side indicate marks allocated for that question only and the [CO1] represents mapping of the question with one of the expected outcomes of the course.]

1. Imagine you're in a mysterious land of computer sorcery, where weird symbols replace regular code. Your task is like a magical quest: you have two secret numbers, A and B, both just two digits long. Your wizardry challenge is to create a spell that shows the total of these mystical numbers on the screen. But there's a twist! You must also check if this magical total can be evenly divided by the sacred numbers 5 and 3. How would you, as a code wizard, write this assembly language program, and what instructions would you use to perform the required calculations and checks? 10

Example:

Sample Inputs	Sample Outputs
15 45	Summation= 60 Yes, Divided by 5 and 3 both.
50 50	Summation= 100 Divided by 5 but not by 3
11 12	Summation= 23 Not divided by 5 or 3
22 11	Summation= 33 Divided by 3 but not by 5

2. Imagine you're a wizard in the world of computer magic. Your task is to create a special spell in assembly language. This spell takes a mystical artifact—a phone number—as its input. The magic script you craft must then sort the numbers in a special order, making them ascend like a magical staircase. But that's not all! Your spell should also reveal the average of these magical numbers. How would you, as the magical coder, conjure up this special program to show the ascending order and the average of the digits in your phone number? 10

Example:

Sample Inputs	Sample Outputs
Phone Number: 01374690825	Ascending Order = 00123456789 Average of the digits = 4

3. Imagine diving into the world of assembly language as a code wizard. Your mission is to create a special spell using the cryptic strings of your first and last names as ingredients. Your magical script must reveal if these names have the same length and uncover the number of vowels hidden within your unique name. In simpler terms, how would you, as the coding wizard, create a program in assembly language to find out if your names are equally long and to count the vowels in your magical name? 10

Example:

Sample Inputs	Sample Outputs
First Name: Rihan Last Name: Eshan	The lengths of your first and last name are Equal. Total vowels in your Name = 4
First Name: Anika Last Name: Rahman	The lengths of your first and last name aren't Equal. Total vowels in your Name = 5

Note: Check the length of the strings must be done using a **PROCEDURE** and count the total vowels in your name must be passed by **MACR0**