

## **University of Central Punjab**

## **Faculty of Information Technology**

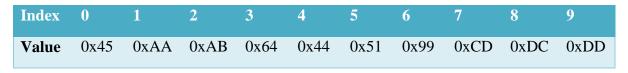
## Computer Organization and Assembly Language (COAL) Mid Term Exam Lab Spring 2021

Name:	Registration Number
Total Marks:50	Time Allowed: 2 hours
Instructions:	
1. This is closed b	ook and closed notes paper.
2. Only computer	calculator is allowed.
3. Attempt all que	
<ol><li>Submit the .a comments.</li></ol>	sm files on UCP student portal of both questions with proper
	Good Luck

Question# 1: 20 marks

Write a program which sum those elements whose both nibbles (4bit) are not equal. Save the result in sum variable. Keep in view the following restrictions.

Let array of *byte* values with 10 elements.



Let value  $0x64 \rightarrow 0110 \ 0100$  both nibbles are not same

Let value  $0xAA \rightarrow 1010\ 1010$  both nibbles are same

Result should be

Sum: dw 0x034E

Note: your code must be generic.

Question # 2: 30 marks

Write a program which counts the **total number** of **1**'s and **total number** of **0**'s in the entire array. Save the result count for the **total number** of **1**'s in "Total\_ones" variable and **total number** of **0**'s in "Total\_zeros" variable. Assume array of byte size with 10 elements.

Use the following variables:

Sample\_array: db 0x1B, 0xAA, 0x75, 0x63, 0x23, 0x00, 0x00, 0x01, 0x40, 0x9E

Total\_ones: db 0
Total\_zeros: db 0

**Example:** 

Sample\_array: db 0x1B, 0xAA, 0x75, 0x63, 0x23, 0x00, 0x00, 0x01, 0x40, 0x9E

Total\_ones: db 27
Total\_zeros: db 53

Note: Use Shifting or Rotation only and your code must be generic.