**Question 1 [10 Marks]**

Consider the following DD number given below;

Num: DD 0X012AB CD45

Exist: DW 0X0000

Write a program that will identify if the hexadecimal pattern 0XBC does exist in the variable Num. If the pattern exists, then store 0 in exist variable otherwise store 1.

**Note: Use only bit manipulation/masking instructions to check the pattern. Do not use Mul, Div instructions.**

**Question 2 [10 Marks]**

Write a program that will sum the odd Hexadecimal digits (1, 2, 3, 4) of odd elements of array (0, 1, 2, …, 9) and return the sum. Store the Sum in Result. Assume size of array is 10.

input: dw 0xABCD, 0xBCDE, 0xCDEF, 0x1234, 0x5678, 0x9ABC, 0x1478, 0x12AB, 0xA12D, 0x1122

now take a single element e.g. 0xABCD and odd digits are B and D

A=10, B=11, C=12, D=13

Sum of this element is 18 in Hexadecimal

Now repeat the step for odd elements of the array and update the sum in Sum variable.

Sum: dw 0x0018,0x01C,0x000Es, …….

**Example:**

input: dw 0xABCD, 0xBCDE, 0xCDEF, 0x1234, 0x5678, 0x9ABC, 0x1478, 0x12AB, 0xA12D, 0x1122

Result: dw 0

After execution the output will be

Result: dw 0x005C