** COMSATS Institute of Information Technology Lahore**

**Assignment-III**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Course Title: | Computer Organization & Assembly Language | Course Code: | | CSD203 | | Credit Hours: | 3 |
| Course Instructor/s: | Ms. Iqra Obaid | Programme Name: | | BSCS/BSSE | | | |
| Semester: | 3rd | Section: | | G,H,D | | | |
| **Deadline:** | **8 January 2018** | **Maximum Marks:** | | | **15** | | |
| Student’s Name: |  | Reg. No. | CIIT/SDP- -BCS- /LHR | | | | |
| **Important Instructions / Guidelines:**   * Attempt all questions. * Show all intermediate steps while solving a question. | | | | | | | |

**Question 01:** Perform the following INSTRUCTIONS on given values of registers and write FLAGS values after execution.

**[Marks: 1\*3 = 3]**

|  |  |  |  |
| --- | --- | --- | --- |
| **AX/AL** | **BX/BL** | **INSTRUCTION** | **FLAG VALUE** |
| 02h | FFh | MUL BL | SF=          OF= ZF= |
| FFFFh | 02h | DIV BL | SF=          OF= ZF= |
| 3AD1h | AD2Bh | ADD AX,BX | SF=          OF= ZF= |

**Question 02:** Consider the following data and initial values of register while solving this question. Assume variable ARR is starting from offset 0100h.

**AX = 4142h**, **SI = 0100h, DI = 0102h, DF = 0**

**ARR DB** 01h, 02, 20h, 20h

Fill in the given table for each of the following instructions. **Note:** These instructions are **NOT** being executed in a sequence. Do mention register name and/or memory address which one is being modified. **[Marks: 2\*4 = 8]**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Instructions** | **New Contents** (in hex, of the source or destination which one is being modified) | **Contents of SI or DI (**only the one being modified) |
|  | STOSB |  |  |
|  | STOSW |  |  |
|  | LODSW |  |  |
|  | MOVSW |  |  |

**Question 03:** Suppose the following declarations have been made

STRING1 DB ‘FGHIJ’

STRING2 DB ‘ABCDE’

Write instructions to move STRING1 to the end of STRING2, producing the string ‘ABCDEFGHIJ’

**[Marks: 4]**

** COMSATS Institute of Information Technology Lahore**

**Assignment-IV**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Course Title: | Computer Organization & Assembly Language | Course Code: | | CSD203 | | Credit Hours: | 3 |
| Course Instructor/s: | Ms. Iqra Obaid | Programme Name: | | BSCS/BSSE | | | |
| Semester: | 3rd | Section: | | G,H,D | | | |
| **Deadline:** | **8 January 2018** | **Maximum Marks:** | | | **15** | | |
| Student’s Name: |  | Reg. No. | CIIT/SDP- -BCS- /LHR | | | | |
| **Important Instructions / Guidelines:**   * Attempt all questions. * Show all intermediate steps while solving a question. | | | | | | | |

**Question 01:** Mathematics students are trying to solve an equation involving graphs that require certain values at multiple points that need to be computed first before computation of actual equation

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| n | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Value of A(n) | 4 | 0 | 3 | 2 | 1 | 5 | 2 | 8 | 4 | 7 |
| Value of B(n) | 3 | 2 | 9 | 4 | 8 | 0 | 2 | 1 | 3 | 6 |

Write a program code that can calculate square of B(n) values and store it in a word array named **Square\_B.** (Use of MUL instruction **not** allowed) **[Marks: 5]**

1. Create a second array that computes

|C(n)|= A(n)-B(n) and store the result in an array **DIFFERENCE [Marks: 5]**

**Question 02:** Write some code to sum in AX the elements of array NUM defined by

NUM DW 10,20,30,40,50,60,70,80.90.100 **[Marks: 5]**

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