COMSATS University Islamabad, Lahore Campus

Department of Computer Engineering

Microprocessor Systems and Interacting (CPE342)

Course Instructor: Engr. Usman Rafique

Assignment __TWO__ Section: _FA22-BCE-B_

Submitted by: _____

Reg. number: _____

Submitted on: _____

	Q1	Q2	Q3	Total
Marks Obtained				

COMSATS UNIVERSITY ISLAMABAD, Lahore Campus

Department of Computer Engineering

Subject: Microprocessor Systems and Interfacing (CPE342)	**Batch: FA22-BCE-B**
Assignment No. TWO	**Total Marks: 30**
Handed over on: 20th March 2025	**Submission Date: 27th March 2025 (In class)**
Student's Name:	
Registration Number:	

Instructions:

- Provide your solution in the space provided against each problem
- Back side of each leaf is for rough work only
- Submission after the deadline will not be graded
- Do not use lead pencil in your solution

Note: The CPU referred to in this problem sheet is Intel 8086-88.

Problem 1 **10 Marks**

Consider the following high-level language program structure. Construct complete assembly language program that can be generated from this program structure.

```
for(a=0; a<=250; a=a+2){
      y = (x*a)-125;
            if(y>100){
                  pair();
                  y++;
            }     //end if
}     //end for

void pair(j,k){
      j = j/k;
}     //end void
```

Assume all the variables **a, x, y, j** and **k** are 8-bit integers and are stored in BL, DL, DH, CL and CH, respectively.

Solution:

Problem 2 **10 Marks**

Construct an assembly language program that reads 1-byte data from 2000H and 1-byte data from 5000H. Place this data onto the stack, which is initially empty, such that the byte read from 1234H is the lower-byte and from ABCDH is the higher-byte of the 16-bit data that is to be placed onto the stack. Repeat this operation unless the stack segment becomes completely full. The stack segment starts from 9000H.

Solution:

Problem 3 **10 Marks**

Construct an assembly language program that reads a word from stack segment and check whether it is odd or even. Check entire stack segment for this operation. Place the count of even words in AX and count of odd words in BX. The stack starts at B000H. Make use of a subroutine that checks the odd/even property of the word.

Solution: