

# Computer Architecture (EE-3009)

## Assignment 03

Spring 2025

**Due Date:** Friday, May 2, 2025

**Total Points: 30**

**Instruction:**

- You need to submit the **neat and clean handwritten scan copy** of the assignment **on classroom** before due date
- In case of plagiarism, **zero marks** will be awarded to the students.

**Q# 01**

Determine the scheduling of the instructions based on the **Scoreboarding** technique for the following MIPS instructions executed in Pipelined System. [15 Points]

- Instruction Status, Functional unit Status and Register Result Status tables must be drawn.
- Write down order of issue, execution and completion.

ADDD F1, F2, F3

LD F4 , 0(R1)

SUBD F4 , F5 , F6

MULD F7, F4 ,F1

DIVD F0 , F7, F3

Operation	Latency	No : of Units Available
LD/SD	1 Cycle	2
ADD/SUB	2 Cycle	1
MULD	10 Cycles	2
DIVD	20 Cycles	2

**Q# 02**

Determine the scheduling of the instructions based on the **Tomasulo's** technique for the following MIPS instructions executed in Pipelined System. [15 Points]

- Instruction Status, Functional unit Status and Register Result Status tables must be drawn.
- Write down order of issue, execution and competition.

ADDD F1, F2, F3

LD F4 , 0(R1)

SUBD F4 , F5 , F6

MULD F7, F4 ,F1

DIVD F0 , F7, F3

Operation	Latency	No : of Units Available
LD/SD	2 Cycle	1
ADD/SUB	2 Cycle	2
MULD	10 Cycles	2
DIVD	40 Cycles	2