

## Indian Institute of Technology Bombay Department of Electrical Engineering

EE-309: Mícroprocessors

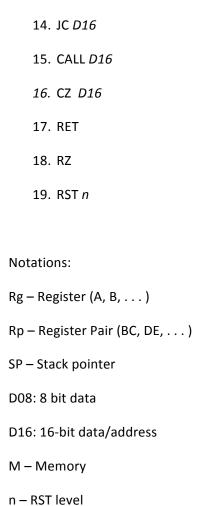
## **Assignment 1**

Submission Deadline: 03 October 2015 (Saturday) 23:55 Hrs (Firm)

**Statement:** Design a scaled down version of 8085 microprocessor, say Mini-8085 which is suppose to implement the following instructions. Hardware flow chart method is a well-structured method to design microprocessors. Therefore, use hardware flow chart method to design Mini-8085. It should be microcode-based architecture, i.e., use control store (CS) to store encoded control signals. Provide level 2 flow chart, Datapath organization and controller organization including the layout of control store and complete control words along with decode logic.

## Instruction Set

- 1. MOV Rg, Rg
- 2. MOV Rg, M
- 3. MOV *M*, *Rg*
- 4. MVI Rg, D08
- 5. LXI Rp/SP, D16
- 6. LDA D16
- 7. STA D16
- 8. ADC Rg
- 9. ACI D08
- 10. SBB *Rg*
- 11. ANA Rg
- 12. CMP Rg
- 13. JMP *D16*



Please refer to the following book for the further details of these instructions and encoding of the instructions

Ramesh Gaonkar, *Microprocessor Architecture, Programming, and Applications with 8085*, PRI Publisher