

### HW3 (100 points)

- 1.. For a 4-bit SAR ADC,  $V_{REF}$  for the DAC is 10 V,  $V_{in}$  at a moment is 6V. Show all the states of the ADC's output in a state diagram. (35 points)
2. Hand-draw the register-level schematic of a 4-bit SAR register and explain the operation procedure. (35 points)
3. Explain why the TI set-reset DFF is rising edge triggered and why logic high after it holds the value. (30 points)