1. Please describe the basic components of a flexible manufacturing system (20%)? Please clearly define the functions of each component at the same time.

2. In industrial automation, please specify classifications of sensors (10%)? Please also describe the application purposes of each sensor classification in industry (10%)? Use realistic examples if possible.

3. Please define modular design? Please describe the advantages of modular design in industry (15%)?

4. Please evaluate the following pneumatic system, and determine the motions of Cylinders A and B once the Start button is pushed. Lines I to IV are NOT pressurized by default (20%).

![Pneumatic System Diagram]
5. Please convert the following Relay-and-Switch diagram into a PLC ladder diagram using the provided symbol chart (10%), and determine the motions of the three outputs A, B and C (15%).