

*Instrumentation & Control*

**College of Engineering, Pune**  
**Final Year – Instrumentation & Control**  
**PI-512 – Batch Process Control**

Academic Year: 2012- 13

Timing: 3 hrs  
Max. Marks: 50

Instructions:

1. All Questions are compulsory & carry equal Marks
2. Assume suitable data
3. Draw neat diagrams wherever necessary
4. Use of non programmable calculators are allowed

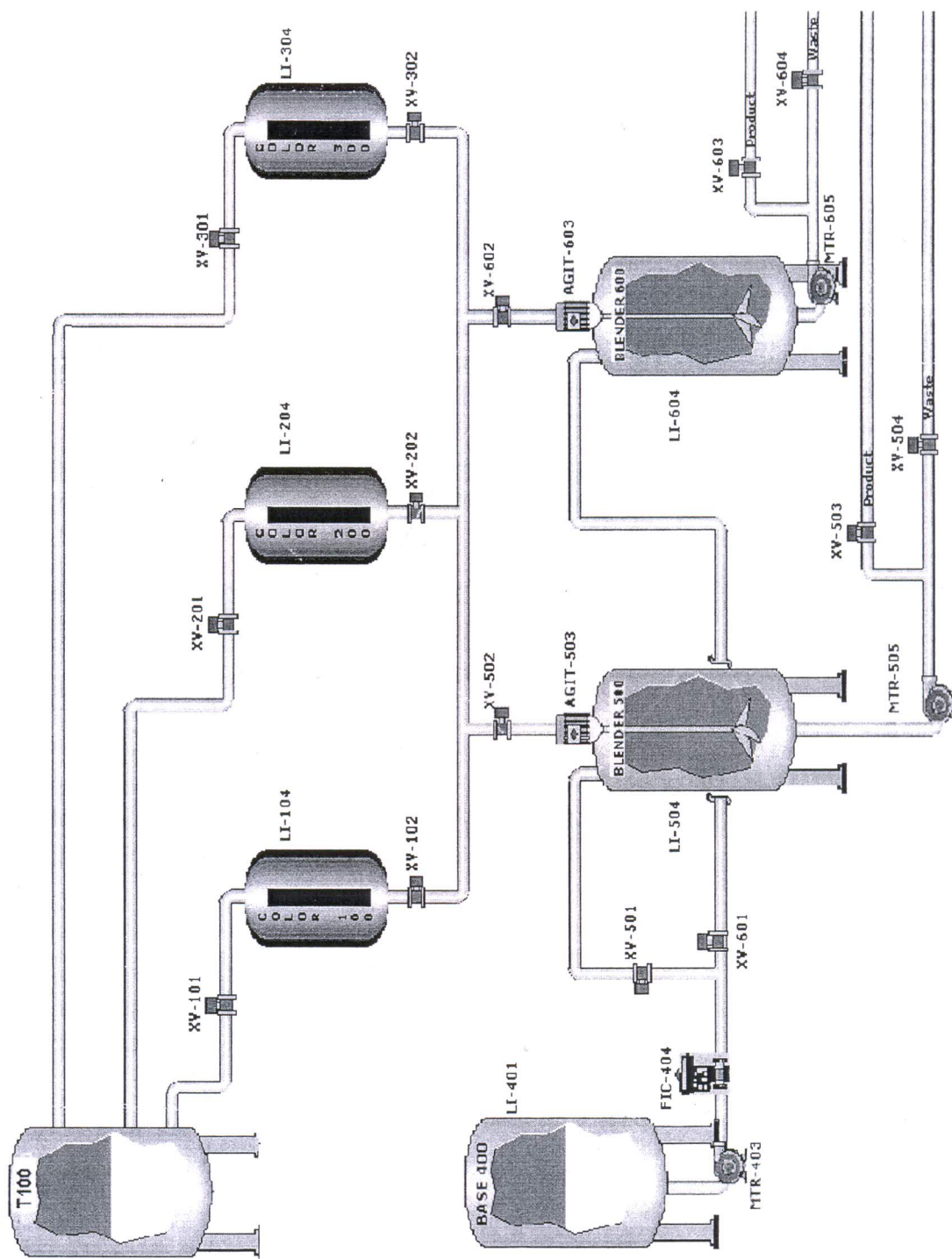
1. Draw and discuss architecture of a typical batch control system. Explain in detail, various functions and their relevance in Batch Management System.
2. A pharmaceutical manufacturing unit is to be set up till level 3 automation. State the Batch Control System requirement while designing the system. Explain a typical design approach and typical steps involved in project execution.
3. In a dry syrup manufacturing process, Batch Control System is to be designed. Any hold and stop in the process is going to damage the total batch. Design and discuss possible configurations of reliable and fault tolerant system.
4. Write short notes (only two)
  1. Recipe Management in batch Control system
  2. Batch control system functional specifications and evaluation criteria
  3. Information and display requirements in batch control system

5. Fig A shows a simple P&ID for paint manufacturing unit.

Tank T100 is used to store a particular color element. To generate different color shade, the color element is to be mixed with water in tank COLOR 100, 200 and 300. Base solution from tank BASE400 is mixed with color shade in blender AGIT 503 and AGIT 603 to get desired paint shade. On-Off Valves (XV), flow meters (FIC) and motors (MTR) are as shown in diagram.

Draw Physical model and procedural model for batch reactor as per S88 standard.

Fig A



Best of Luck