

Instrument Control

College of Engineering, Pune
Final Year – Instrumentation & Control
IE 414-2 – Batch Process Control

Academic Year: 2012- 13

Timing: 3 hrs
Max. Marks: 50

Instructions:

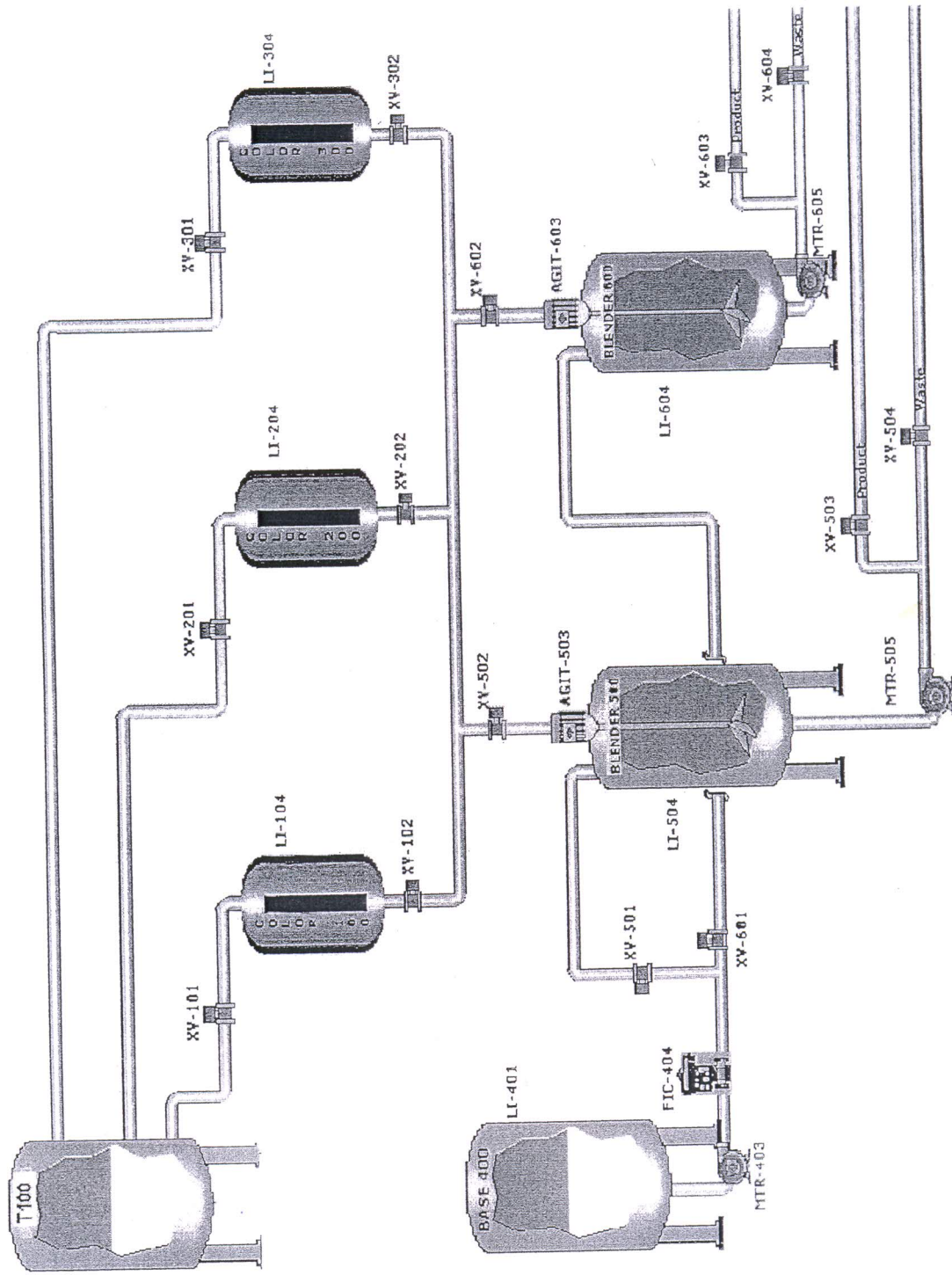
1. All Questions are compulsory & carry equal Marks
2. Assume suitable data
3. Draw neat diagrams wherever necessary
4. Use of non programmable calculators are allowed

1. Explain Control activity model inter-relationship between production planning, scheduling, recipe & batch management, regulatory and discrete control. Discuss their dependence on each other and data exchange.
2. A Paint manufacturing unit is planning implementation of batch control system. What are different theoretical approaches for the execution? Discuss practical approach for the same. Explain functional model of batch control system for the above said project.
3. What are different hardware configurations available in market for batch control system? Discuss all configurations in detail. Compare reliability and availability. State and explain different factors affecting the availability of any batch control system.
4. Write short notes (only two)
 1. Alarm management in batch control system
 2. Recipe Management in batch Control system
 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