PROCESS INSTRUMENTATION

1. Compare linear processes with non-linear processes.
2. State the equation for a PID controller. State the meaning of each term in the PID equation. Sketch circuit diagram for
3. OP-AMP implementation of PID controller.
4. Define dead time. Explain the concept of dead time with suitable example.
5. State the equation for a P+I controller. State the meaning of each term in the P+I controller equation. Sketch
6. Circuit diagram for OP-AMP implementation of P+I controller.
7. Explain the concept of relay-based tuning. State the advantages of relay-based tuning.
8. Why do we need adaptive control? Explain with neat block diagram adaptive control system.
9. Explain cascade control scheme with the help of suitable example
10. Explain Air: Fuel ratio control scheme to maximize boiler combustion efficiency and minimize fuel use.
11. Explain override/selective control scheme to protect a process equipment.
12. Brief block diagram analysis of multivariable systems.
13. Write a short note on: Relative Gain Analysis.
14. Explain interaction between control loops in a typical multivariable system.
15. What is a batch process? Explain batch process control with respect to a batch mixing tank.
15. Explain safety layers employed to ensure safety in chemical process plants.
16. Explain steps involved in defining the problem in process control design.
17. Explain the hierarchy of control structure.
18. 18. Explain how plant performance is monitored in a typical process industry.