

Instrumentation & Control

College of Engineering, Pune
Instrumentation & Control
IE – 314 Process Plant Operations

Academic Year: 2012- 13

Timing: 3 hrs
Max. Marks: 50

End Semester

Instructions:

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

		Marks
Q. 1	List the sequence of unit operations and equipments used in manufacturing of any food product. Discuss different unit operations and equipments used in waste water treatment plant. List the typical sensors used for the plant. OR List and discuss parameters affecting rate of distillation. Explain the components used in distillation column. Select the most suitable method and equipment of separation in oil refinery. As per laboratory test reports, the crude oil extracted is rich in Naptha and fuels oil. Justify and explain your selection.	10
Q. 2	A In paper manufacturing plant, after bleaching the pulp is to be dried to remove the moisture content. Suggest and justify which type of dyers can be suitable for the process with neat diagram	5
Q. 2	B A water treatment plant is to be designed to supply 2 million liter potable water. Plan a method/s for separation of suspended solids so that solids having average size 1 micrometer can be blocked.	5
Q. 3	A. For manufacturing an antiseptic powder, a size reduction method and equipment is to be selected. Final product should have size in between 20 -25 micrometer. After size reduction, the product is to be separated depending on their size (all the bigger particles than specified size should again directed for size reduction. Select separation method and equipment. Justify and explain the selections.	8
Q. 3	B. What is Corrosion and what are factors affecting rate of corrosion? Discuss methods to avoid corrosion of an overhead hopper made up of mild steel which stores alkaline solution. Hardness of the same hopper material is to be measured; Rockwell hardness tester is selected to carry out testing. Explain its principle and operation.	7

- Q.4 A. What is condensation? List and explain different condensers. Compare the listed equipments. 4
- Q. 4 B. Write notes
1. Humidification and dehumidification techniques 4
 2. Types of pumps 4
 3. Shell and tube type of heat exchangers 3

-----Best of luck-----