

R10

## Max Marks: 75

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1. (a) State and explain Stefan-Boltzmann's law of heat radiation  
(b) List the characteristic of heat transfer by radiation [8+7]
2. Explain boiling point composition curves of mixtures of type I and type II solutions. [15]
3. (a) Distinguishing features of evaporation with other heat process with applications  
(b) Classification of evaporators [8+7]
4. Explain construction, operation in detail of Fluidized Bed Dryer along with applications [15]
5. Explain about construction, working, advantages and disadvantages of Spray Dryer. [15]
6. (a) Explain about various theories of size reduction of a powders.  
(b) Explain about construction, working and applications of Fluid Energy mill. [7+8]
7. Write a note on mixing of semi solids. Classify the equipment. Mention the factors influencing the selection of equipment. Explain in detail about Triple roller mill with a neat labeled diagram. [15]
8. Mention the different levels of automatic process control in a pharmaceutical industry. Describe Unit operation control, Unit process control and Plant level control. [15]

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