

B.E. Instrumentation Engineering (Model Curriculum) Semester - V
IN501M1 - Unit Operation & Power Plant Instrumentation

P. Pages : 2

Time : Three Hours



GUG/S/23/14019

Max. Marks : 80

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- Notes :
1. All questions carry marks as indicated.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.

1. a) Describe the importance of heat transfer in chemical engineering processes. 8
- b) Name the distinct modes of heat transfer and describe the basic laws associated with it. 8

OR

2. a) Categorize various heat exchangers and review each with neat diagram. 8
- b) What is the significance of unit operation in power plant. 8
- 3) a) Predict the generalized flow diagram of typical oil refinery. 8
- b) Discuss drying with its principle of operation and classification. Also review various patterns of gas-solid interaction in dryers. 8

OR

4. Write short note on. 16
 - i) Flash distillation
 - ii) Continuous distillation with reflux.
 - iii) Multi component distillation system.
5. a) Show the layout and explain the processes for continuous and batch type biogas plant. 8
- b) Describe the working of nuclear power plant with neat sketch. 8

OR

6. a) Discuss ocean thermal energy conversion with neat sketch. 8
- b) Summarize the main considerations in selecting site for solar power generation with its advantages and disadvantages. 8
7. a) Write short note on. 8
 - i) Fuel – Air ratio
 - ii) Steam temperature control
 - iii) Boiler pressure control.

b) Compare and contrast subcritical boiler and supercritical boiler. **8**

OR

8. a) Discuss the merits and demerits of forced draught over induced draught **8**

b) Discuss “present status of power generation in India”. **8**

9. a) Discuss turbine operating principle. **8**

b) Discuss safety systems in turbine. **8**

OR

10. a) Discuss in detail with neat sketches open type cooling system and closed type cooling system. **8**

b) Write short note on materials used in steam condenser. Also list various advantages of condenser. **8**
