

B.E. / B.Tech. Instrumentation Engineering (Model Curriculum) Semester-V
IN501M1 - Professional Elective-I : Unit Operations and Power Plant Instrumentation

P. Pages : 2

Time : Three Hours



GUG/S/25/14019

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) Give classification of various heat exchangers and explain any one in detail. 8
b) Describe the distinct modes of heat transfer. 8

OR

2. a) Differentiate between unit operations and unit processes. 8
b) Explain Evaporation and Condensation as heat transfer processes. 8
3. a) Explain the fractional distillation unit with a schematic diagram. 8
b) Write a short note on- 8
 - a) Flash Distillation
 - b) Multi component distillation system

OR

4. a) Summarize the applications of drying in detail. 8
b) What are the different methods of drying? Explain any one in detail. 8
5. a) Describe with a neat sketch the working of a Wind Energy Conversion Systems (WECS) with main components. 8
b) Discuss in detail ocean thermal energy conversion with neat sketch. 8

OR

6. a) Describe the working of a nuclear power plant with neat diagram. 8
b) Summarize the main considerations in selecting a site for hydro power generation with its advantages and disadvantages. 8

OR

7. a) Write short note on **any two**. **8**
- i) Furnace draught control ii) Damper and fan control
- iii) Fuel-Air ratio iv) Feed water control
- b) Classify and describe the different ash handling system with the relative merits and demerits. **8**

OR

8. a) Explain the working of different cycles in thermal power plant layout. **8**
- b) Discuss the merits and demerits of forced draught over induced draught. **8**

OR

9. a) List the main component of a steam turbine and explain the function of each. **8**
- b) Differentiate between impulse and reaction turbine. **8**

OR

10. a) Explain the hyperbolic cooling tower with its merits and demerits. **8**
- b) Recognize the necessity of external treatment of feed water and describe the various treatment techniques. **8**
