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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) Outline the shell and tube heat exchangers with its alternate designs. **8**

OR

2. a) What is the significance of unit operation in power plant? **8**
- b) Name the distinct modes of heat transfer and describe the basic laws associated with it. **8**
3. a) Give the classification of evaporators in detail. Discuss natural circulation evaporator. **8**
- b) Explain the process of Batch and continuous distillation. **8**

OR

4. a) Summarize the applications of drying in detail. **8**
- b) Discuss with neat sketch working and construction of flash distillation. **8**
5. a) Discuss tidal power generation with its advantages and disadvantages. **8**
- b) Summarize the main considerations in selecting a site for nuclear power plant with its advantages and disadvantages. **8**

OR

6. a) Describe the working of solar power plant with neat diagram. **8**
- b) Describe with neat sketch the working of a Wind Energy Conversion Systems (WECS) with its main components. **8**
7. a) Discuss "Draught" with its classification in detail. **8**
- b) Discuss three element feed water control system with neat sketch. **8**

OR

8. a) Sketch a general layout of a thermal power plant and explain the working of different cycles in layout. **8**
- b) Discuss the factors are considered for selecting a site for a big "Thermal Power Plant". **8**
9. a) Differentiate between impulse and reaction turbine. **8**
- b) What are the different methods of governing the steam turbine? Discuss any one. **8**

OR

10. a) Define Dalton's law of partial pressure and explain how it applies to a condenser of steam power plant. **8**
- b) Give the classification of condenser in detail. Explain any one of them with neat sketch. **8**
