Roll No. | | | | | | | | | | | | | Total No. of Pages : 01

Total No. of Questions : 08

M.Tech.(EE) (2019 m& Onwards) (E-IV) (Sem.–3)

POWER SYSTEM PLANNING

Subject Code : MTEE-302B

M.Code : 72227

Time : 3 Hrs. Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. **Attempt any FIVE questions out of EIGHT questions.**
2. **Each question carries TWENTY marks.**
3. **Unless stated otherwise, the symbols have their usual meanings in context with subject. Assume suitably and state, additional data required, if any.**

1. Explain two states markov model and derive the expression for availability and unavailability. Draw and explain model of three units indicating all transition states.
2. Differentiate between short term and long term planning. Explicitly mention how uncertainty is taken into consideration in there modeling. Name some of the techniques used for solving power system planning problems.
3. Consider a system containing 5 units of 50 MW each with forced outage rate of 0.01. Prepare the capacity outage table for the system. Find loss of load expectation and risk factor if peak load is 180MW and base load is 40% of peak load.
4. Explain in detail the complete mathematical formulation of the least cost optimal planning problem. Also draw the flow chart. Name few techniques to solve this problem. Briefly explain one of them.
5. What do you understand by load predictions? Enlist different techniques to predict the power load for planning. Explain regression analysis of load prediction. How uncertainty is considered in load prediction?
6. What is power system simulator or emulator? Explain its functions using block diagram.
7. Explain **any one** optimization technique for solving power system problem.
8. Write short notes on the following :
   a) Integrated renewable resource simulation model
   b) Pool based market operation in power dispatch planning

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.