Roll No. | | | | | | | | | | | | |

Total No. of Pages : 01

Total No. of Questions : 08

M.Tech.(EE) (2013 Batch Elective-IV) (Sem.–3)

POWER SYSTEM PLANNING

Subject Code : MTEE-302B

Paper ID : [A3303]

Time : 3 Hrs. Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

1. (a) What is power system planning? What are its planning tools? (7)
   (b) Explain the structure of power system. (6)
   (c) What are the different indices of reliability is power industry? (7)
2. (a) Write a detailed note on generation system capability planning. (10)
   (b) How can we assess the economic and reliability benefits of pool operation? (10)
3. Create a load loss array for two inter connected power system A and B. The reserve capacity of each system is equal to the capacity of its largest unit. The tie live has a firm capacity of 20 MW with negligible forced outage rate. System A has two 20 M units and one 10 MW unit with forced outage rates of 20%. System B has two units of 10 MW and one unit of 5 MW with forced outage rates of 10%. (20)
4. (a) Explain demand side and supply side options of Integrated resource planning. (10)
   (b) Explain least cost optimization problem formulation involving capital cost. (10)
5. (a) How can load be predicted for a power system for future analysis? (8)
   (b) Compare peak demand and energy forecasting by trend and economic projection methods. (12)
6. (a) How is availability of power assessed? (6)
   (b) What is power pooling? What are the different models of power pooling? (8)
   (c) How does reliability impact generation planning? (6)
7. (a) What are the strategies employed in generation expansion? Explain any one model for generation expansion. (10)
   (b) What are the various production cost simulation models? (10)
8. Write short notes on:
   (a) Interconnected systems (10)
   (b) Least cost optimization for thermal plants. (10)