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Total No. of Pages : 02

Total No. of Questions : 08

M.Tech.(Power System) (2013 Batch) (Sem.-3)**POWER SYSTEM PLANNING****Subject Code : MTPS-302B****Paper ID : [A3222]****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 the steps involved in the strategic planning of power system? (10)
(b) Explain the probability models of generation units and loads. (10)
2. (a) Define system reliability and explain reliability planning criteria. (10)
(b) Develop mathematical objective function of power system expansion planning. (10)
3. (a) Describe the two techniques of load forecasting in power system. (8)
(b) Explain least cost planning. (6)
(c) Discuss the different planning tools. (6)
4. Create a load loss array for two inter connected systems A and B. The reserve capacity of each system is equal to the capacity of its largest unit. The tie has a firm capacity of 10 MW with negligible F.O.R.

System	No. of units	Unit Capacity	F.O.R	System Capacity
A	2	10 MW	0.02	25 MW
	1	5 MW	0.02	
B	2	6 MW	0.01	15 MW
	1	3 MW	0.01	

(20)

5. (a) Give in detail the various performance indices that are used for the analysis of composite power system. (10)
(b) What is power pooling and power trading in power system planning? Explain in detail. (10)
6. (a) Describe mathematical development of generation expansion planning considering objective functions and constraints. (10)
(b) Formulate the least cost generation expansion planning problem in brief. (10)
7. (a) Explain the methodology to be adopted for optimal expansion planning of power system. (10)
(b) Write briefly about any one simulation model for production cost of generation expansion planning. (10)
8. Write short notes on :
 - (a) Power supply availability assessment. (7)
 - (b) Integrated resource planning. (7)
 - (c) Capacity planning. (6)