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10EE761

Seventh Semester B.E. Degree Examination, Dec.2015/Jan.2016
Power System Planning

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART – A

1 a. What are the major components of planning process? Briefly explain least cost utility planning. **(08 Marks)**

b. What are the major features of Indian electricity rules, 1956? **(06 Marks)**

c. List the various factors that affect load pattern in a power system. **(06 Marks)**

2 a. Explain various plan options, uncertainties and objectives in a power utility planning process. **(10 Marks)**

b. What is cogeneration? Briefly explain the two basic processes with block diagrams. **(10 Marks)**

3 a. Mention the need and benefits of rural electrification. Briefly explain the components of rural electrification planning. **(08 Marks)**

b. What is the significance of private sector participating in power projects? Mention the major modes of participation. **(08 Marks)**

c. What are the objectives of a sound consumer tariff? **(04 Marks)**

4 a. Describe the major environmental hazards caused by fossil fired thermal plants and the methods to minimize them. **(10 Marks)**

b. Explain the terms 'non utility generation' and 'wheeling'. How wheeling affects system performance? How wheeling contracts are made? **(10 Marks)**

PART – B

5 a. Define power system reliability. Explain how optimal reliability level is determined in power system reliability planning. **(10 Marks)**

b. Describe load prediction by 'Regression analysis'. **(10 Marks)**

6 a. With a figure, explain a centralized computing system for monitoring and controlling a power system. **(10 Marks)**

b. What is power system state estimation? Briefly narrate the basic steps involved in estimating the best state vector. **(10 Marks)**

7 a. Briefly explain optimal power system expansion planning. What is the parameter to be optimized/ minimized in the problem? **(05 Marks)**

b. Mathematically define the objective function and constraints in optimal power system expansion planning. Briefly narrate each component of the objective function and constrains. **(15 Marks)**

8 Write short notes on :

a. Any one mathematical, programming method used for optimal power system expansion planning. **(08 Marks)**

b. Online power flow studies for system operation planning. **(06 Marks)**

c. Supply and demand side options in integrated resource planning. **(06 Marks)**

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