M.E. Second Semester (Electrical (Electronics & Power) Engineering) (New-CGS)

12324 : Elective-I : Power Systems Planning & Reliability : 2 EEPME 4

P. Pages : 1 **AW - 3857**

Time : Three Hours Max. Marks : 80

Notes :
1. All question carry equal marks.
2. Answer **two** question from Section A and **two** question from Section B.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.
5. Illustrate your answer necessary with the help of neat sketches.
6. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION – A

1. a) Explain trends in power system planning with reference to Load forecasting and Transmission resources. **10**

b) Explain following load forecasting techniques. **10**

i) Auto Regressive Integrated Moving Average (ARIMA).

ii) Exponential Smoothening.

iii) Time-Series Analysis.

2. a) Explain the importance of load forecasting in Generation planning. Enlist methods of load forecasting. **10**

b) Enlist short term load forecasting techniques. Explain any one technique in details. **10**

3. a) Define system reliability and explain reliability planning criteria. **10**

b) Explain in details. How power system reliability can be assessed by means of Deterministic, probabilistic and Cost/Benefit analysis approaches. **10**

SECTION – B

4. a) Explain the performance indices for the analysis of composite power systems. Enlist also new indices emerged in a Deregulated environment. **7+3**

b) Explain mathematically the Markov reward model for power system reliability measures. **10**

5. a) Explain unit commitment for generation system assessment. **10**

b) How the loss of load indices assess the Generation system reliability? Explain. **10**

6. a) Enlist and explain reliability indices of substation protection. **10**

b) Explain reliability model of a directional over-current protection scheme for high voltage transmission system. **10**

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