Paper / Subject Code: 52876 / Power System Planning and Relibility (DLOC - VI)

(Time: 3 Hours)   **Total Marks – 80**

N.B.:- (1) Question No.**1** is compulsory.
      (2) **Attempt** any **three** questions out of remaining **five** questions.
      (3) Assume necessary data wherever necessary.

1. Attempt the following   20
   a) State characteristics of load.

   b) Describe Bath tub curve.

   c) State System and load point indices.

   d) Describe LOLE, LOEE and EIR

2. a) Differentiate between Short term, Medium term and long term load forecasting. 10

   b) Explain the weather sensitive load model.   10

3. a) Explain Markov process with two state model.   10

   b) A system is having four components with individual reliability of   10

   0.97, 0.99, 0.92, and 0.95 each. Calculate reliability and unreliability of a system when the

   components are connected in i) series and ii) parallel.

4. a) Explain Capacity Outage Probability table Recursive algorithm for   10
   including no de-rated state.
   b) Consider a system containing five units of 40MW each with   10
   FOR=0.03. Prepare the capacity outage table for the system. Find
   Loss of Load Expectation and risk factor if the annual peak load is
   180 MW and base load if 40% of peak load.

5. a) Explain conditional probability method.   10

   b) A generating system has one generator unit of 25 MW and 2   10

   generator units of 50 MW with FOR 0.02. Prepare Capacity Outage Table for the same.

6. a) Describe Reliability evaluation of radial distribution Feeder system   10

   b) Define following index: 10
           a) System Average Interruption Frequency Index
           b) System Average Interruption Duration Index
           c) Customer Average Interruption Duration Index
           d) Customer Total Average Interruption Duration Index
           e) Customer Average Interruption Frequency Index

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