

(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 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. | 10 |
| 4. a) Explain Capacity Outage Probability table Recursive algorithm for including no de-rated state. | 10 |
| b) Consider a system containing five units of 40MW each with 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. | 10 |
| 5. a) Explain conditional probability method. | 10 |
| b) A generating system has one generator unit of 25 MW and 2 generator units of 50 MW with FOR 0.02. Prepare Capacity Outage Table for the same. | 10 |
| 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 | |
