Duration: 3 Hours **[Max Marks: 80]**

N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

Q1 Attempt any FOUR **[20]**

a Explain Lead Time in PJM Method.

b State the objectives of Generation System Planning?

c Explain any one type of outage with suitable state space diagram?

d Explain weather load model?

e Differentiate between long term & short-term planning?

Q2 a Categorize loads in power system? Explain load growth characteristics of various loads? **[10]**

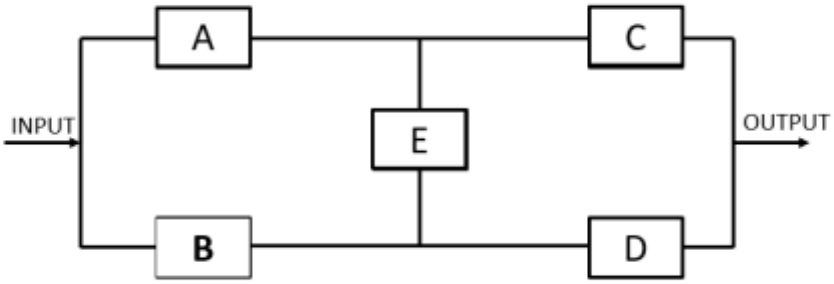
b Explain the duties of power system engineer in short term, long term and medium-term planning. **[10]**

Q3 a Explain different mathematical approaches to load forecasting? **[10]**

b Explain two state model of reliability and show that MTTF is reciprocal of failure rate. **[10]**

Q4 a Explain Individual Load Point Indices and System Load Point Indices. **[10]**

b Evaluate a general expression for system success and the reliability of the system if each component has reliability of 0.99. **[10]**



Q5 a A generating system have one generator of 25 MW and 2 generators of 50 MW with FOR 0.02. Prepare capacity outage table with the help of a recursive algorithm? **[10]**

b Explain Bath-tub curve in detail? **[10]**

Q6 a Explain modified PJM method? **[10]**

b Write short note on **[10]**

1. Area Risk curve and 2. Outage Replace Rate

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