BE/sem.8/old/-EE

21/12/2015

PSPR

(7)

QP Code : 2907

Duration: 3 hrs

Total Marks: 100

NOTE:

1. Question No 1 is compulsory
2. Solve any four out of remaining six questions
3. Figures on right hand indicate full marks
4. Assume suitable data if necessary

Q1) [20]

a. Prove that MTTF is reciprocal of failure rate.
b. A series system has identical components each having a reliability of 0.998.what is the maximum number of component that can be allowed if minimum system reliability is to be 0.90.
c. Define outage replacement rate (ORR) in PJM method.
d. What is load growth characteristic?

Q2) [20]

a. What is load forecasting? Describe different techniques used for load forecasting.
b. Describe steps to be taken in transmission system planning.

Q3) [20]

a. Differentiate between weather sensitive non-weather sensitive loads. What is the effect of these loads on load forecasting?
b. Why is reactive power planning necessary? What are the methods used in reactive power planning.

Q4) [20]

a. A generation system has 4 identical units of 50 MW each with FOR=0.02. The load duration curve is linear with load factor of 60% and peak load 150MW.determine for this system loss of load probability index and risk factor.
b. What is meaning of term outage? What are reasons behind forced outage and explain forced outage rate.

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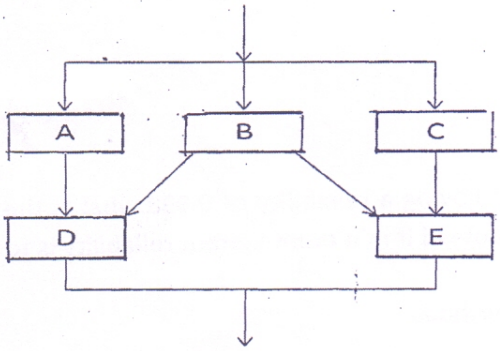
QP-Con. 12110-15.

Q5) [20]

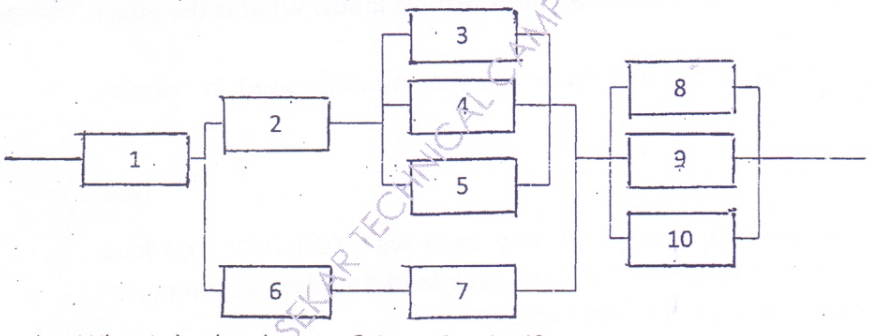
a. In the system shown in figure ,write an expression for the reliability , if individual component A,B,C,D,E is 0.8,0.88,09,0.95and 0.99 respectively. What is system reliability?



b. Explain the concept of rate of departure, total rate of departure and frequency. Also prove that state frequency is defined in terms of state probability and rate of departure.

Q6) [20]

a. For the given figure find out the reliability equation and find the system reliability. If the reliability of each component is 0.8



b. What is bath tub curve? State its significance.

Q7) [20]

a. What is operating reserve? Explain PJM method in details.
b. Explain data requirement for system reliability evaluation

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