1T00838 - B.E.(Electrical Engineering)(SEM-VIII)(Choice Base Credit Grading System)(R- 2019-20)
(C Scheme) / 52876 - Power System Planning and Relibility (DLOC - VI)
QP CODE: 10038331   DATE: 14/12/2023

**(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) Define failure rate and repair rate.

   b) State characteristics of load.

   c) State LOLE, LOEE and EIR
   d) Describe peak load forecasting.

2. a) Describe important points in long term load forecasting.   10

   b) Explain the weather forecast model.   10

3. a) Describe frequency and duration method.   10

   b) A system is having four components with individual reliability of   0.92,

   0.94, 0.96, 0.98 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) 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

   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) Describe Reliability evaluation of radial distribution Feeder
    system   10

    b) Calculate reliability evaluation using conditional
       probability approach in the following system with each component
       reliability 0.99.   10
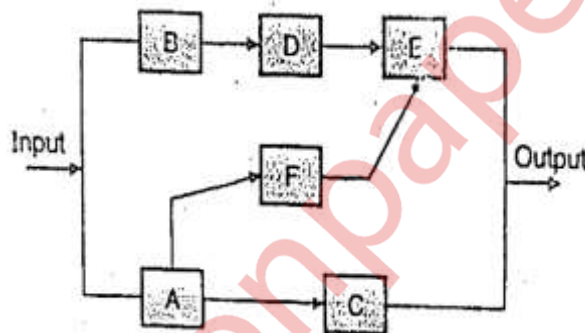
6. Write short note on any two   20
    a) Markov process with two state model.
    b) Capacity Outage Probability table
    c) renewable energy and reliability of power system

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