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BIEEE-010

B.Tech. - VIEP - ELECTRICAL ENGINEERING

(BTELVI)

Term-End Examination, 2019

BIEEE-010 : POWER SYSTEM RELIABILITY

Time : 3 Hours]   [Maximum Marks : 70

Note : Attempt **any five** questions. All questions carry equal marks.

1. (a)   Discuss Operating Reserve in detail.   [10]

    (b)   Explain the modified PJM method in brief.   [4]

2. (a)   Discuss the system and load point indices in Power System Reliability.   [10]

    (b)   Derive the failure rate expression for transmission line.   [4]

3. (a)   Write a short note on two plant style load system.   [10]

    (b)   Differentiate between Parallel and Mesh network.   [4]

4. (a) Discuss the loss of load indices in detail with suitable example. [10]

(b) Explain in brief concept of Scheduled Outage. [4]

5. (a) Discuss the different interruption indices for distribution system. [10]

(b) Explain the Weathu load modelling. [4]

6. (a) Discuss the Reliability indices for interconnected power systems. [10]

(b) Define Scheduled Outages and Generating Capacity Limits. [4]

7. (a) One generating systems has two assemblies with a total capacity of 150 mw; the reliability data for both assemblies are listed in table below. Calculate the outage capacity probability and the frequency model of the Power Generating System using recurrence formula : [7]

Table : Unit Reliability Data

Unit No.	Effective Capacity (MW)	Fault Rate 1/year	Repair Rate 1/year	FOR
1	50	0.4	9.6	0.04
2	100	0.4	9.6	0.04

(b) There are 3 identical transmission lines connected in parallel. Each of them has 10 MW transmission capacity. The forced outage rate is $q = 0.005$ and the average repair rate is $t_r = 0.5$ days. Create the outage table of the composite component formed by the three transmission lines. [7]

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