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BIEEE-010

B.Tech. – VIEP – ELECTRICAL ENGINEERING (BTELVI)

Term-End Examination

00373 **December, 2016**

BIEEE-010 : POWER SYSTEM RELIABILITY

Time : 3 hours *Maximum Marks : 70*

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

1. (a) Explain the probability models for generating units and loads in detail. *7*

(b) Describe the Markov process in the context of reliability analysis. *7*

2. (a) Discuss in detail about variable reserve and maximum peak-load reserve for reliability analysis of interconnected systems. *10*

(b) Compare isolated and interconnected power systems. *4*

3. (a) Explain the concept of modified PJM method and write its advantages over original PJM method. 7

(b) Describe the Hot Reserve and Security Function Approach. 7

4. (a) How can reliability indices be used for load probability method ? 7

(b) Discuss the various performance indices that are used for the composite system reliability analysis. 7

5. (a) Classify different types of outages and explain their effects in power systems. 7

(b) Describe the process of calculating Forced Outage Rate with the help of two-state model. 7

6. (a) Discuss with illustration why the loop system of a distribution network is more reliable as compared to the radial system. 7

(b) How is risk prediction done in a distribution system ? Also explain the various interruption indices in a distribution system. 7

7. Write short notes on any ***two*** of the following : *2×7=14*

(a) Preparation of capacity outage probability table of a power plant

(b) Economics and Reliability of generating units

(c) Line failures in a distribution system