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BIEE-022

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

00037

Term-End Examination

June, 2014

BIEE-022 : POWER SYSTEM

Time : 3 hours *Maximum Marks : 70*

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

1. (a) What do you understand by per unit system ? A generator rated at 30 MVA, 11 kV has a reactance of 20%. Calculate its p.u. reactance for a base of 50 MVA and 10 kV. 7

(b) What do you understand by symmetrical components of unbalanced system ? 7

2. (a) What are the factors that affect steady state stability ? 7

(b) Explain the formation of Z bus using singular transformation and algorithm. 7

3. (a) Draw approximate representation of a transmission line and also define surge impedance with reference to transmission line. 7

(b) Elplain protection of equipments and transmission line against travelling waves. 7

4. (a) Explain single line-to-ground fault and line-to-line fault on an unloaded generator and power system network. 7

(b) Write a short note on transient in R-L series circuit. 7

5. Develop the flow chart for Newton-Raphson method of load flow solutions. 14

6. (a) Derive the expression of power in terms of symmetrical components in a three-phase network. 7

(b) Enumerate the main objectives of fault analysis and also illustrate the types of fault commonly occurring in transmission lines. 7

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

(a) Impedance and reactance diagram

(b) Ware equation for uniform transmission line

(c) Stability and Stability limit