

7. Describe the following :

Symmetrical components, Sequence networks for synchronous machines, Sequence Networks for transformers and transmission lines.

8. Write short notes on the following :

- (a) Various State of Power Systems
- (b) Power Systems Softwares.

No. of Printed Pages : 04

Roll No. ....

**812**

**B. Tech. EXAMINATION, Dec. 2017**

(Eighth Semester)

(Old Scheme) (Re-appear Only)

(EE)

EE-408

COMPUTER APP. TO POWER SYSTEM  
ANALYSIS

*Time : 3 Hours]*

*[Maximum Marks : 100*

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Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

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

M-812

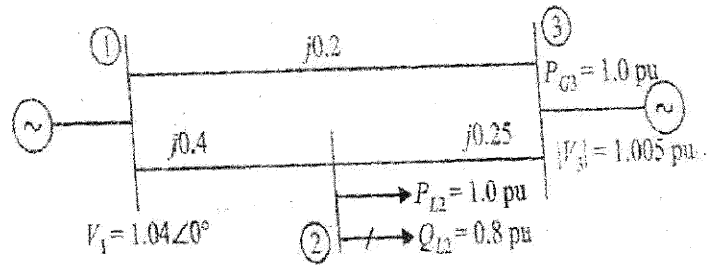
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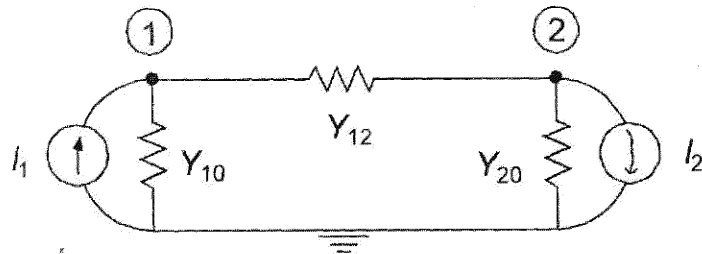
(2-28/8) M-812

P.T.O.

1. Formulate the load flow equations. Draw the flow chart for explaining the method of solving these equations using fast decoupled Newton-Raphson method.
2. For the power system network shown below, compute the bus voltages using the Gauss-Seidel method (one iteration only). Line reactance's and load shown are in per unit :



3. Form the  $Y_{BUS}$  using singular transformation method for the network shown below :



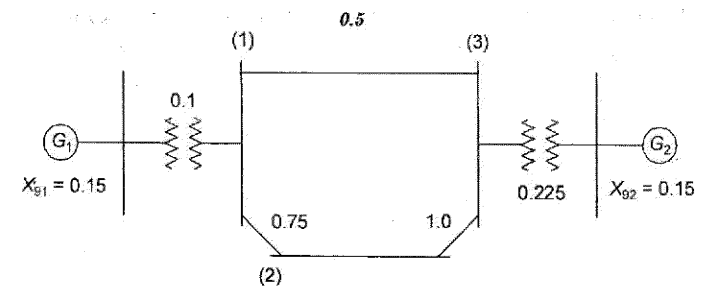
M-812

2

4. Describe the following :

Bus Admittance matrix, Tree and Co-tree, Primitive admittance matrix and its method of formation primitive impedance matrix and its method of formation, Loop incidence matrix and its method of formation.

5. Derive the formulae for fault currents for the line to line fault at  $k$ th bus of power  $n$ -bus system network.
6. In power system shown below, the values marked are the per unit reactance's taking 20 MVA and 11 kV as base values in the generator circuit. Both the transformers are rated for 11/110 kV. A single line to ground fault with a fault impedance of  $j0.088$  pu occurs at bus 2. Determine the actual values of fault current using digital technique.



(2-28/9) M-812

3

P.T.O.