

Code: EE6T3

III B.Tech - II Semester – Regular Examinations – April 2016

**COMPUTER METHODS IN POWER SYSTEMS
(ELECTRICAL & ELECTRONICS ENGINEERING)**

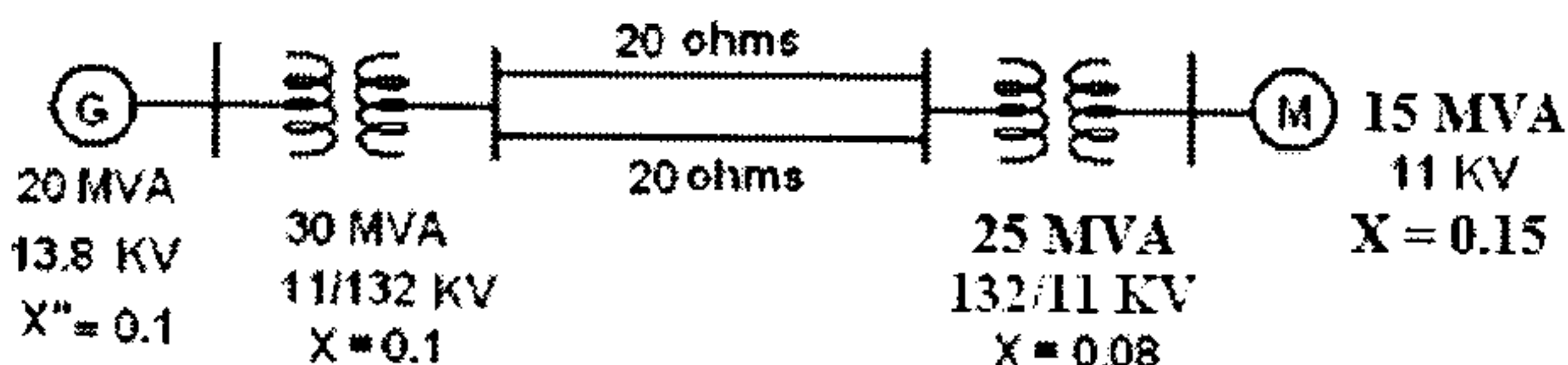
Duration: 3 hours

Max. Marks: 70

Answer any FIVE questions. All questions carry equal marks

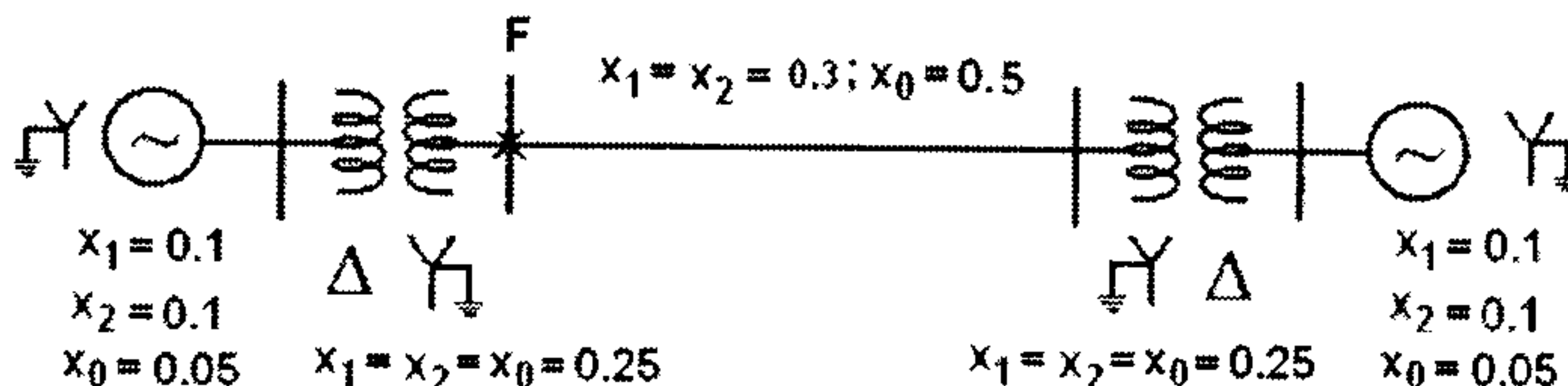
1. a) What is per unit system? Why it is required in power system calculations? 5 M

- b) Draw the P.U diagram for the circuit shown in Figure
Choose base values as relevant to the given quantities. 9 M

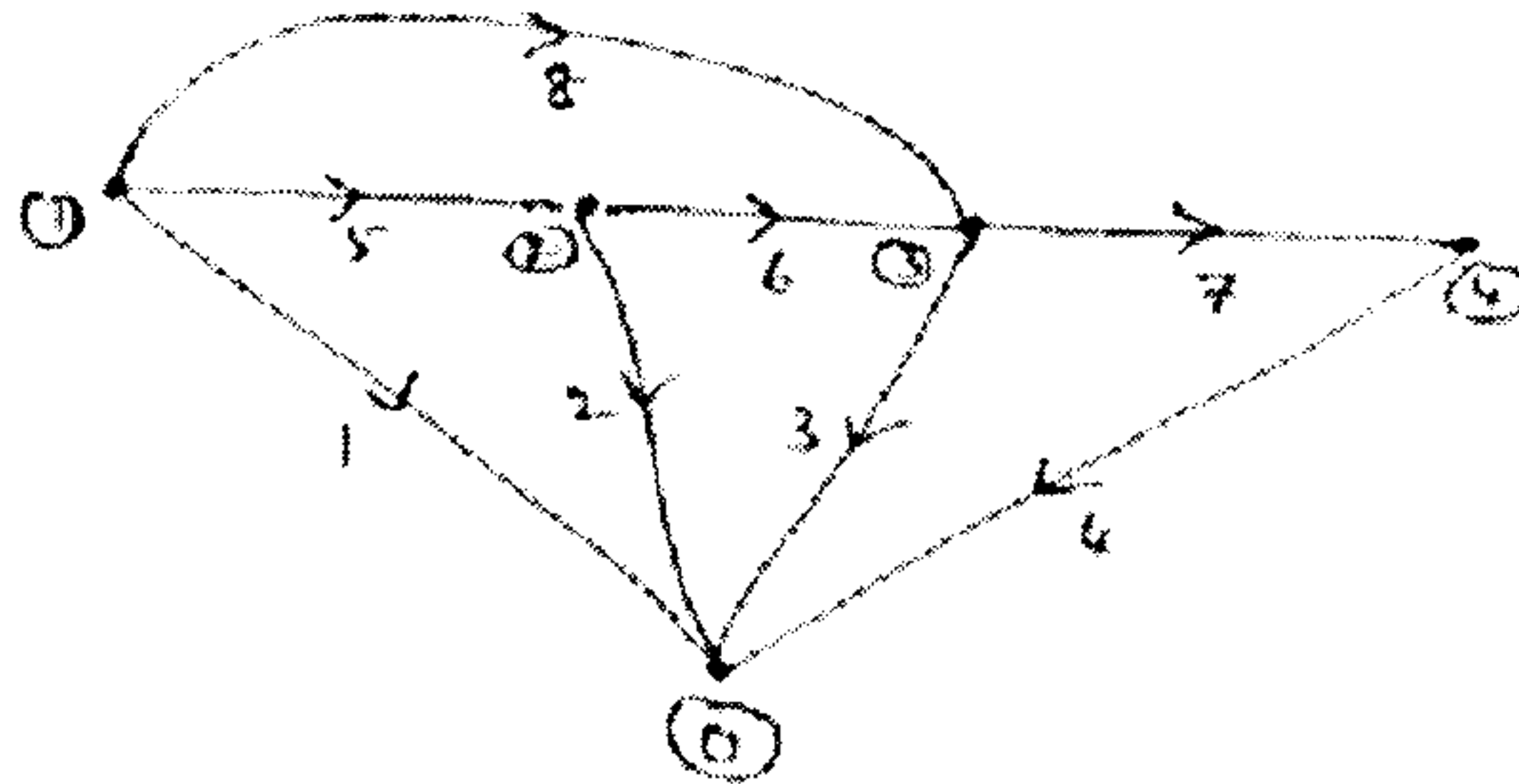


2. a) What are symmetrical components? Why they are used in power system fault analysis? 5 M

- b) For the system shown in Figure a LL fault occurs at point F. Find fault current. 9 M



3. For the figure shown below, determine the Y_{bus} using singular transformation method. The impedance values are given in the table. 14 M



ELEMENT	BUS CODE	IMPEDANCE IN p.u
1	0-1	0.1
2	0-2	0.2
3	0-3	0.3
4	0-4	0.35
5	1-2	0.4
6	2-3	0.1
7	3-4	0.2
8	1-3	0.15

4. With a flow chart, explain Gauss-Seidal iterative method for power flow analysis of any given power system. 14 M
5. Formulate the N-R method (rectangular form) load flow problem. Explain its solution. 14 M
6. Derive expression for a partial network adding a branch to form Z_{bus} . 14 M

7. Explain symmetrical fault analysis using bus impedance matrix. 14 M

8. a) Derive the formula for calculating critical clearing angle. 7 M

b) Draw a diagram to illustrate the application of equal area criterion to study Transient stability when there is a sudden increase in the input of generator. 7 M