Total No. of Printed Pages:2

SUBJECT CODE NO:- E-8190
FACULTY OF ENGINEERING AND TECHNOLOGY
M.E. (Electrical Power System) Examination Nov/Dec 2017
Computer Aided Power System Analysis
(Revised)

[Time: Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B i) Solve any two questions from each section.
ii) Assume suitable data wherever necessary.

Section A

Q.1 a) Derive expression for three phase power in terms of symmetrical components. 10

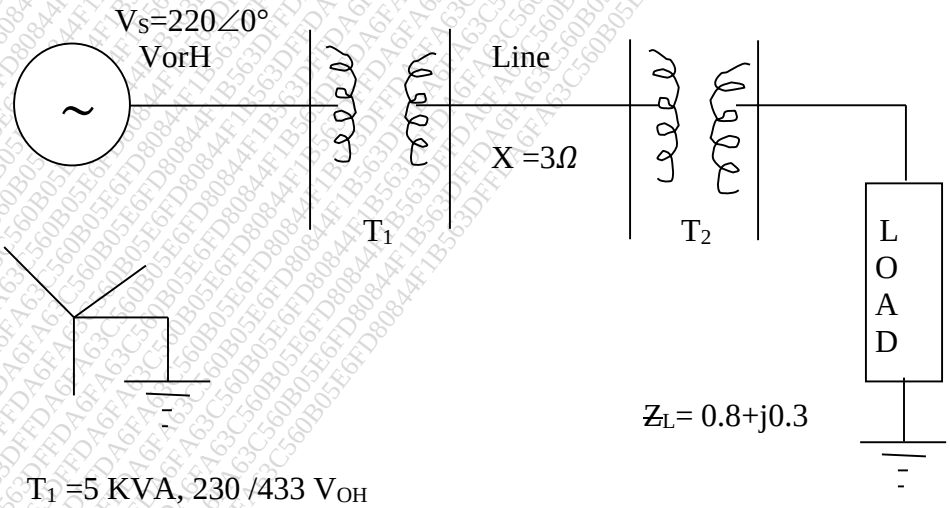
b) In three phase system, the three phase voltages are given by 10

$$V_{an} = 200\angle 0°V$$
$$V_{bn} = 600\angle 100°V$$
$$V_{cn} = 400\angle 270°V$$

Find symmetrical components of the voltage.

Q.2 a) Define PU system. What are the advantages of the PU system, for power system analysis? 10

b) Fig. 1. Show single line diagram of a single phase circuit. Using base values of 5KVA & 230V. Draw the PU circuit diagram & determine the PU impedances & PU source voltage. 10



T_1 =5 KVA, 230 /433 V_{OH}
X_{eq} = 0.1 PU
T_2 = 2KVA, 440 / 120 V
X_{eq} = 0.1 PU

Fig:1:Q.2(b)

Q.3 a) Derive the expression for fault current for double line to ground fault, also draw the inter connections of sequence network. 10

b) Explain the sequence impedance of three phase synchronous generator. 10

SECTION –B

Q.4 a) Explain the features concerning the formation of constraint Matrix 'K'. 10

b) Explain the transformation of shunt faults with respect to the case of Single line to ground fault. 10

Q.5 a) State advantages & dis- advantages of Gauss –Seidel. Method & Newton - Raphson method for power flow analysis. 10

b) Represent the simultaneous 2LG & one Line Open fault using two PA network. 10

Q.6 Write a short notes on any two 20

a) Simultaneous faults analysis by matrix transformation.

b) Gauss – Seidel algorithm for load flow analysis.

c) Computation of fault current & Voltages using series fault transformation.