Al-Mansoura University
Faculty of Engineering
Electrical Engg. Depart.
Fourth Grade(Old System)

Second Semester
Time: Three Hours
Date: 2/06/2013
The Control in Elec. Power Sys

## Answer the following Questions:-

**Q1- Find the critical clearing angle for the system shown in Fig.1 for a three phase fault at the point P. The generator is delivering 1.0 pu power under prefault conditions. ( 20**

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**Q2- Synthesize the waveform of Fig.2 into its harmonic components. ( 18**

**Q3- A single-phase center tap controlled rectifier is operated with a firing angle α of 150 . Provide plots for the load voltage, $SCR_1$ voltage and ac current assuming a continuous current case, i.e. large $L_d$.**

**( 25**

**Q4- Analyse the incident of capacitor switching depicted in fig.3. Calculate the characteristic impedance and the amplification factor. Also calculate them in the case of capacitor bank is 0.59; 175; 2.5 and 8.5 MVAr. ( 25**

**Q5- A second-order damped filter is tuned to $h_n \geq 17$. Knowing $X_c = 1.784\ \Omega$ calculate the filter elements and plot its impedance. ( 22**

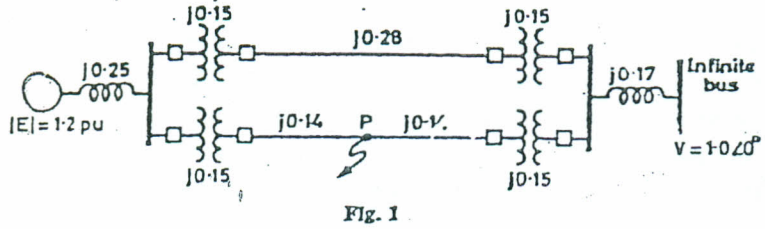


Fig. 1

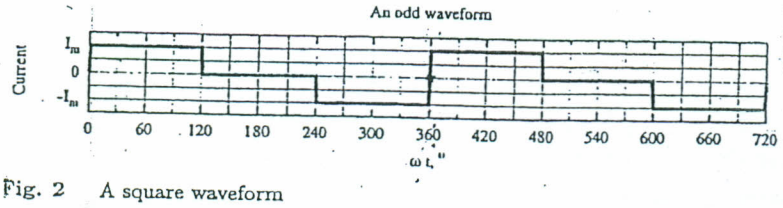


Fig. 2 A square waveform

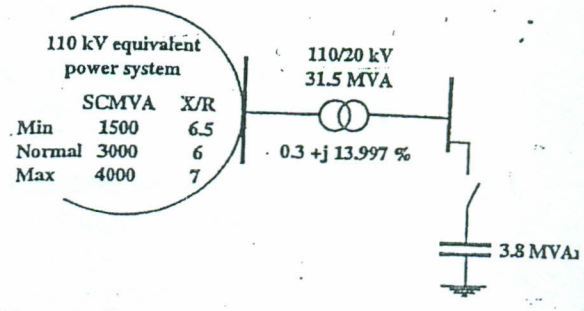


Fig. 3. Capacitor switching incident

مع أطيب دعواتي بالتوفيق والنجاح

Prof.Dr.Eng. I.I. Mansy