بسم الله الرحمن الرحيم

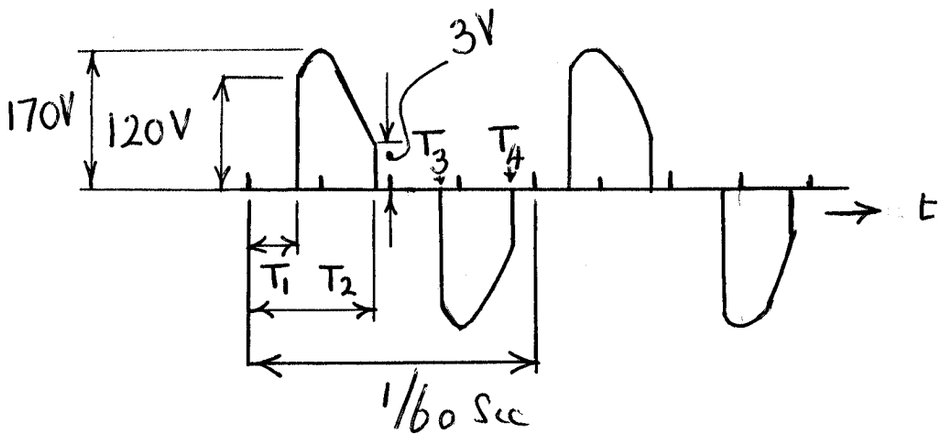
King Fahd University of Petroleum and Minerals
Department of Electrical Engineering

Semester II 2005/2006 **EE445 Industrial Electronics** **Major Test (3)**

ATTEMPT ALL QUESTIONS
TIME ALLOWED ONE HOUR

You have a load of 10 Ω (say a heater of a boiler). It is required to provide this load with the waveform shown in Fig. 1. Of course the shape of this waveform should be controllable so that you can control the power consumed, and hence the temperature, of the load.

You are requested to design a circuit the can provide this waveform. **Draw a complete circuit for your proposal and write down the specifications of each component.**



$T_1 = 1/250$ Sec

$T_2 = 1/125$ Sec

$T_3 = T_1 + 1/120$ Sec

$T_4 = T_2 + 1/120$ Sec

$\omega = 2\pi f$, $f = 60$ Hz , V_{rms} of mains Supply = 110V