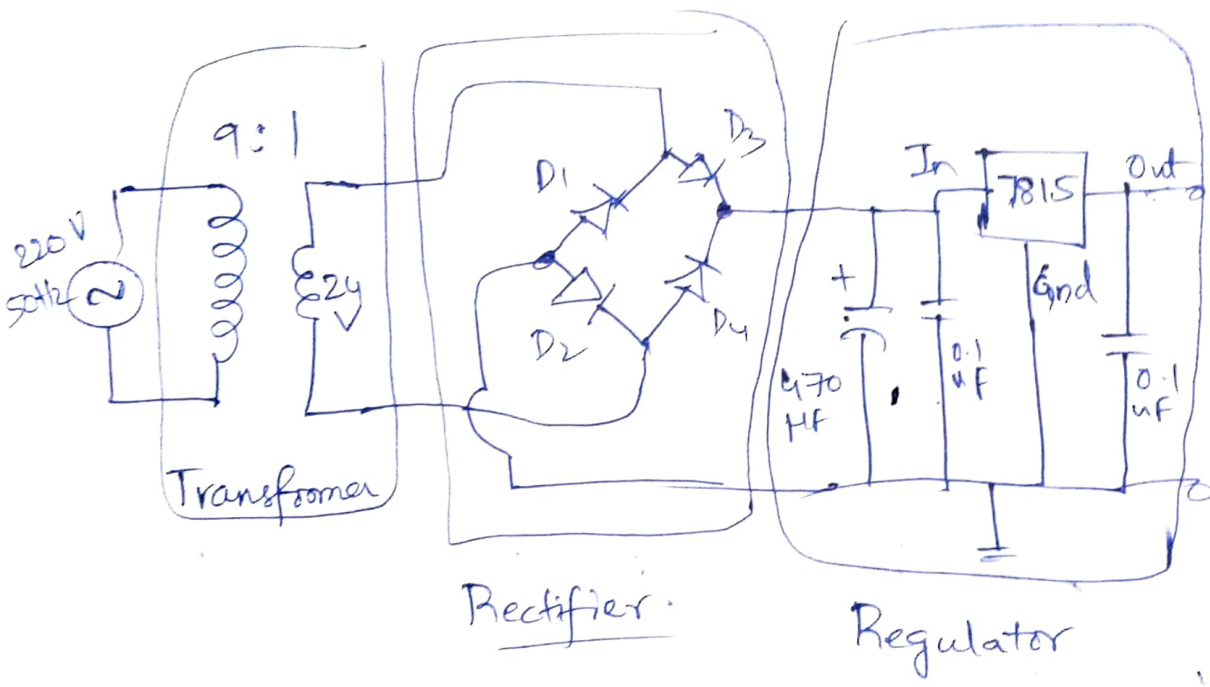
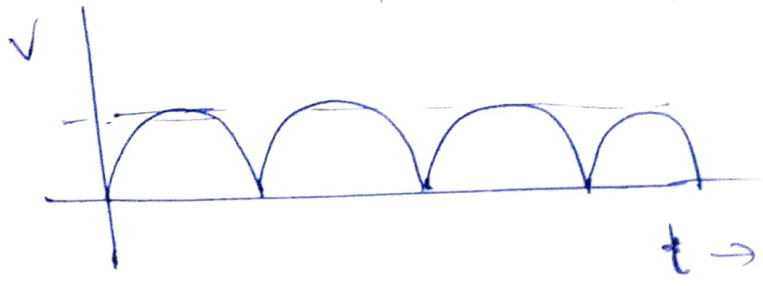


Q4) Power Supply block shown can be again subdivided into these blocks below

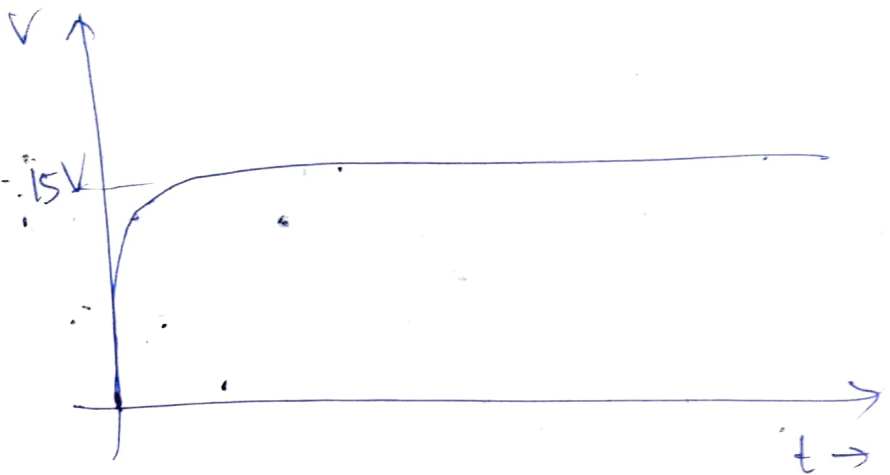
(Transformer + Rectifier + Regulator).
 (9:1 turns ratio) (7815 regulator).



Transformer (9:1) turns ratio, converts voltage waveform 220V 50Hz from mains into 24V AC, 50Hz and then rectifier converts it into like this: (rectified waveform)



And finally regulator (7815) is used to smooth out the voltage and produces nearly constant output voltage of 15V DC as shown below



And this will be ^{power} output source used everywhere in our main circuit wherever V_{cc} is required (as a source for opamp LM741 and for NH_3 sensor as well ; also for providing $V_{ref} = 2.06V$ to comparator through potentiometer).