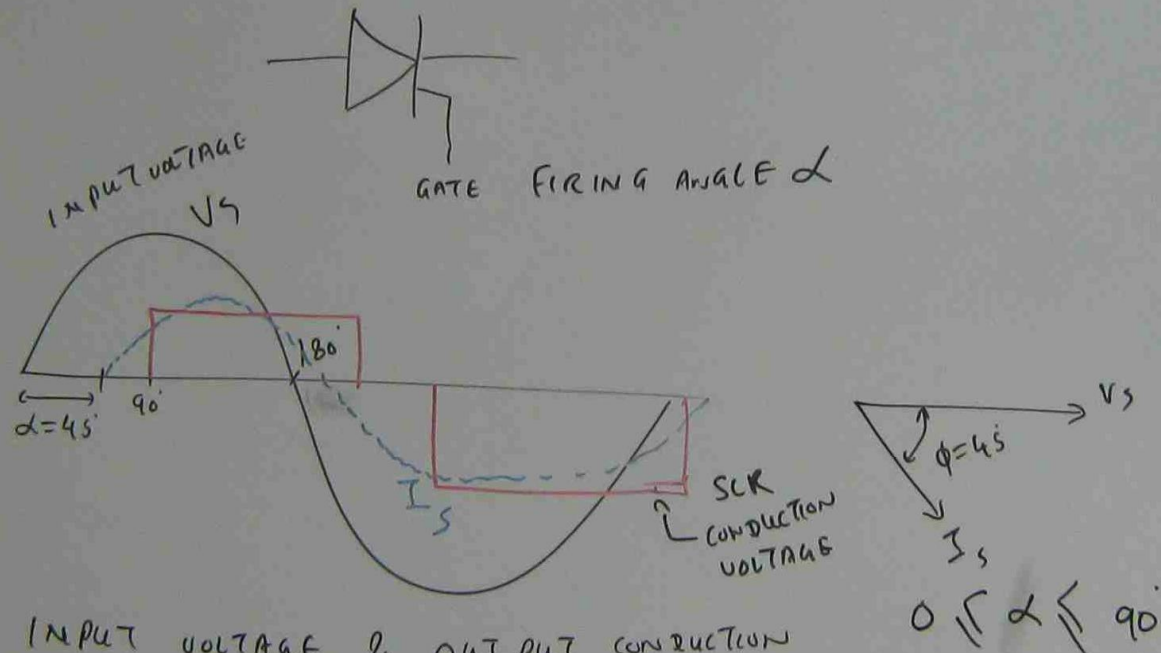
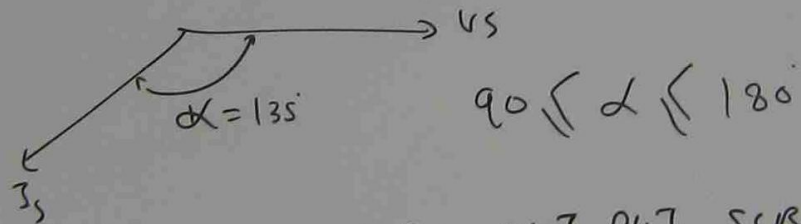
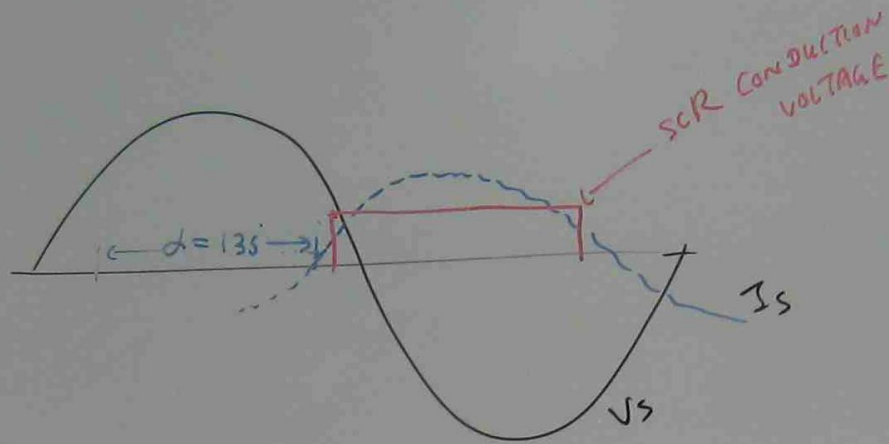


# RECTIFICATION AND INVERTING TASKS EXECUTED BY SCR

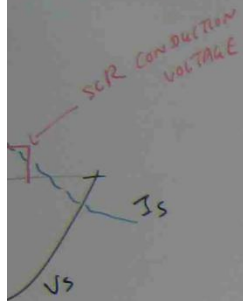


INPUT VOLTAGE & OUTPUT CONDUCTION

VOLTAGE ARE IN SAME DIRECTION  $\rightarrow$  RECTIFICATION

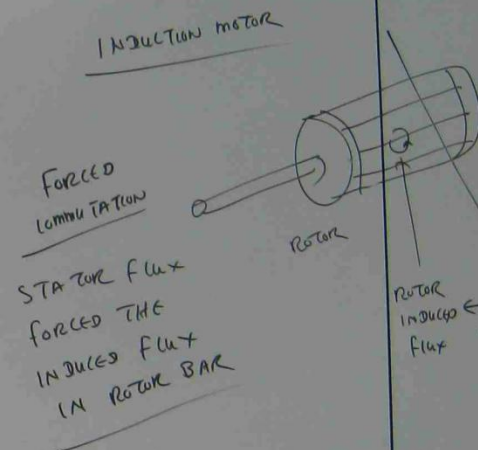
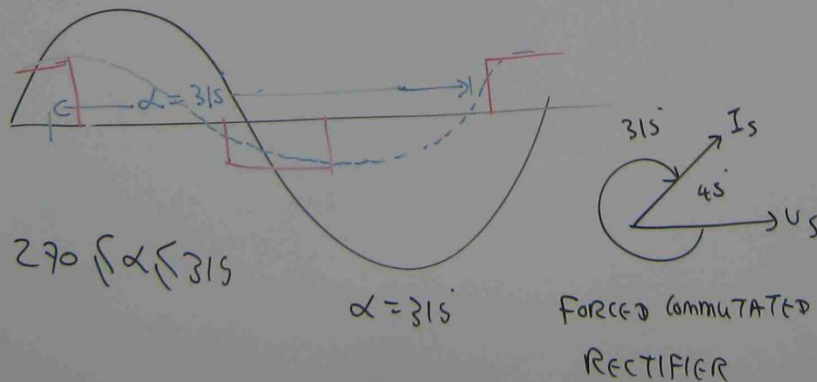
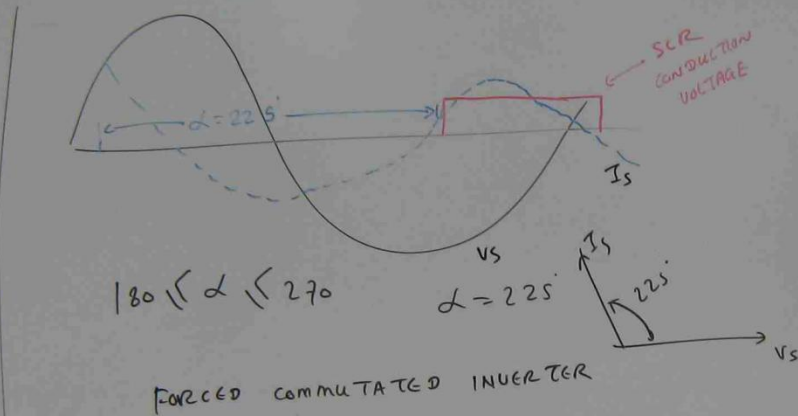


INPUT VOLTAGE & OUTPUT SCR  
CONDUCTION VOLTAGE ARE IN OPPOSITE  
DIRECTION  $\rightarrow$  INVERTER



$$0 \leq \alpha \leq 180^\circ$$

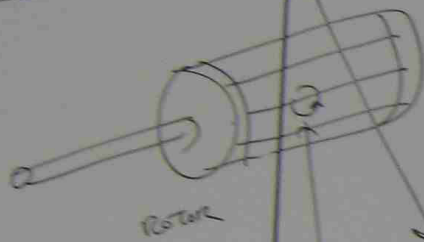
OUT PUT SCR  
IN OPPOSITE  
VERTER



INDUCTION MOTOR

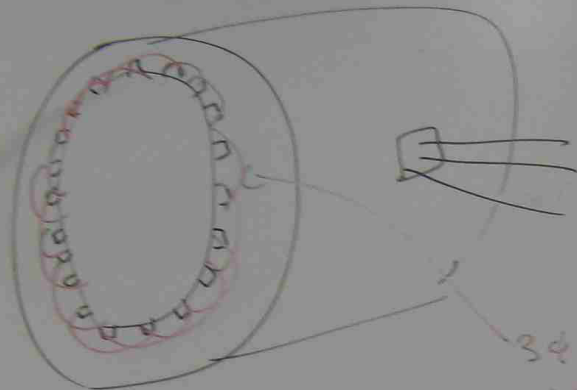
FORCED COMMUTATION

STATOR FLUX  
FORCES THE  
INDUCED FLUX  
IN ROTOR BAR



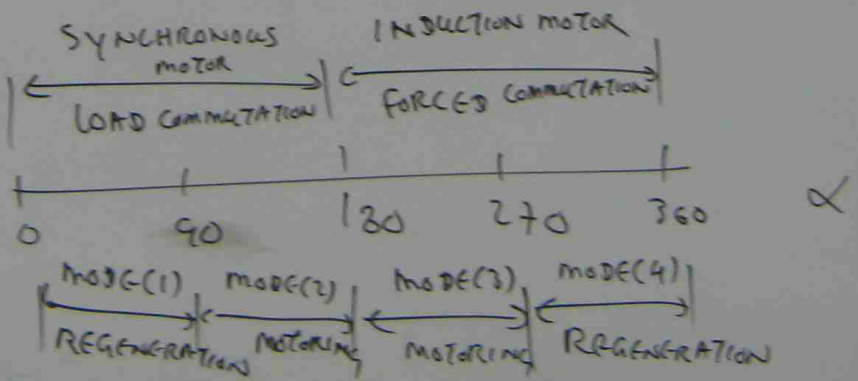
STATOR FLUX  
ROTOR INDUCED FLUX

INTERACTION → DRIVING TORQUE



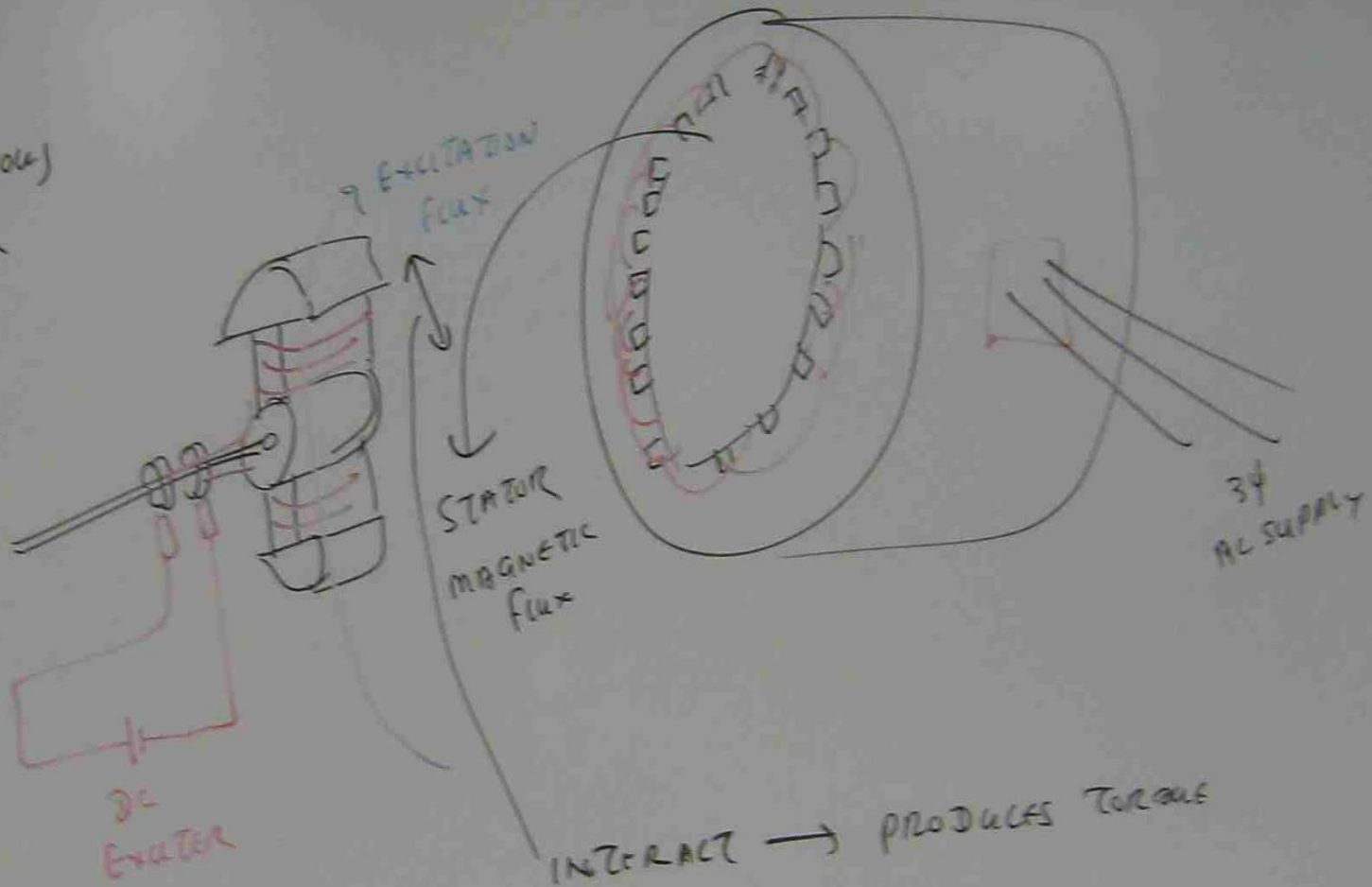
SYNCHRONOUS MOTOR

MODE OF OPERATION OF AC MOTORS



22-0

SYNCHRONOUS  
MOTOR

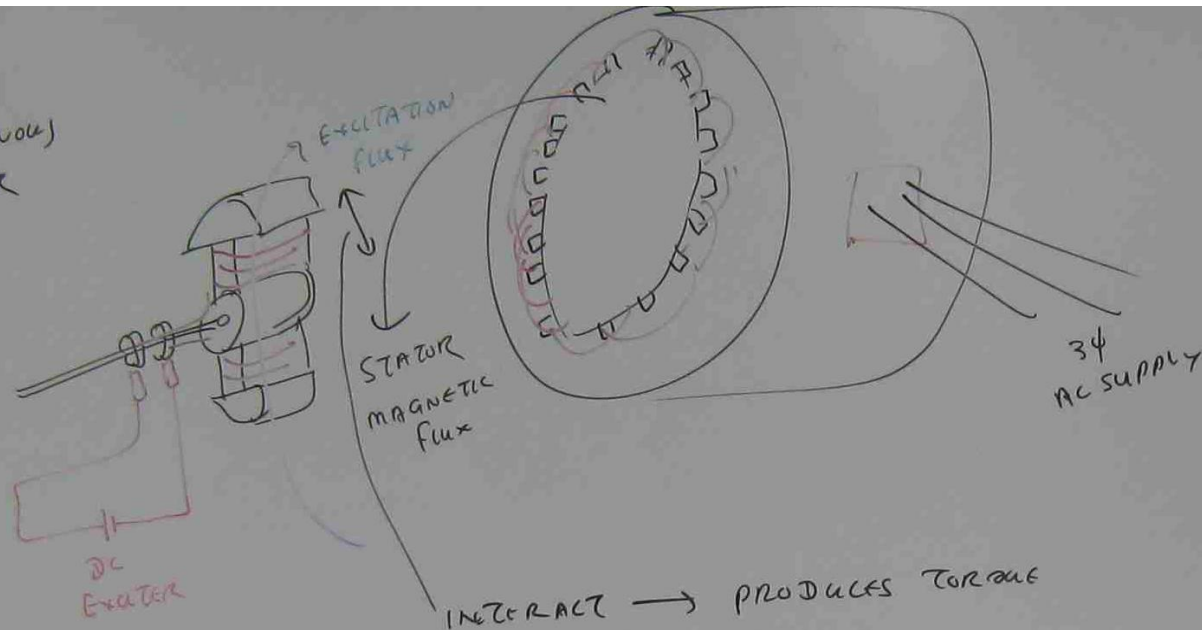


AC MOTOR

LOAD COMMUTATION



SYNCHRONOUS  
MOTOR



LOAD COMMUTATION

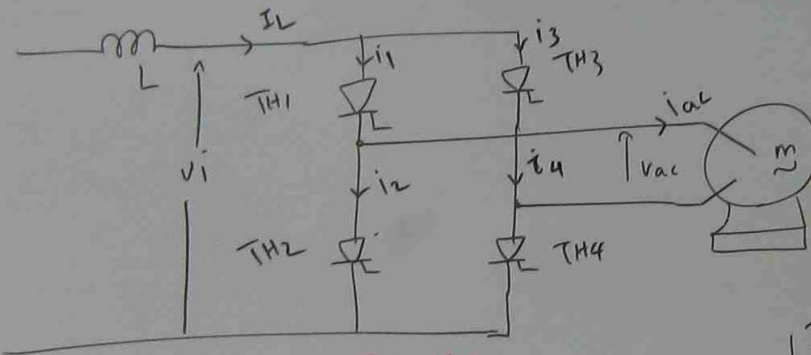
DURING THE PERIOD OF REGENERATION, SUPPLY VOLTAGE AND SCR CONDUCTION VOLTAGE ARE IN SAME DIRECTION.

DURING THE PERIOD OF MOTORING, THEY ARE IN OPPOSITE DIRECTION. IT IS THE ACTION OF BACK E.M.F.

DEPENDING ON TYPE OF MOTOR, SCR FIRING (CONDUCTION)

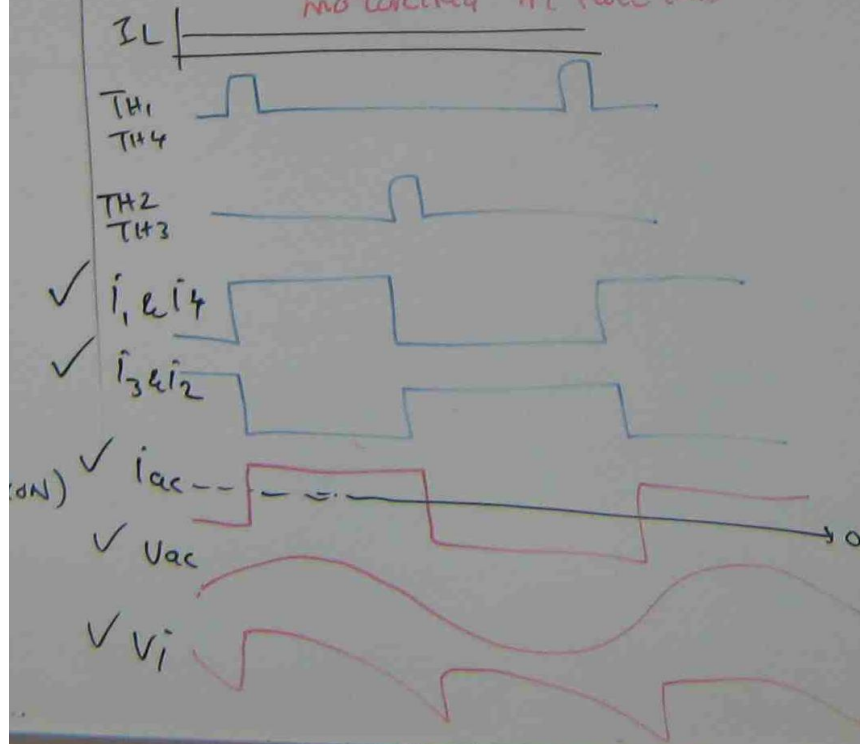
ANGLE VALUE IS TO BE SET. WRONG ANGLE PREVENTS MOTOR OPERATION.

# SINGLE PHASE CURRENT SOURCE INVERTER BRIDGE

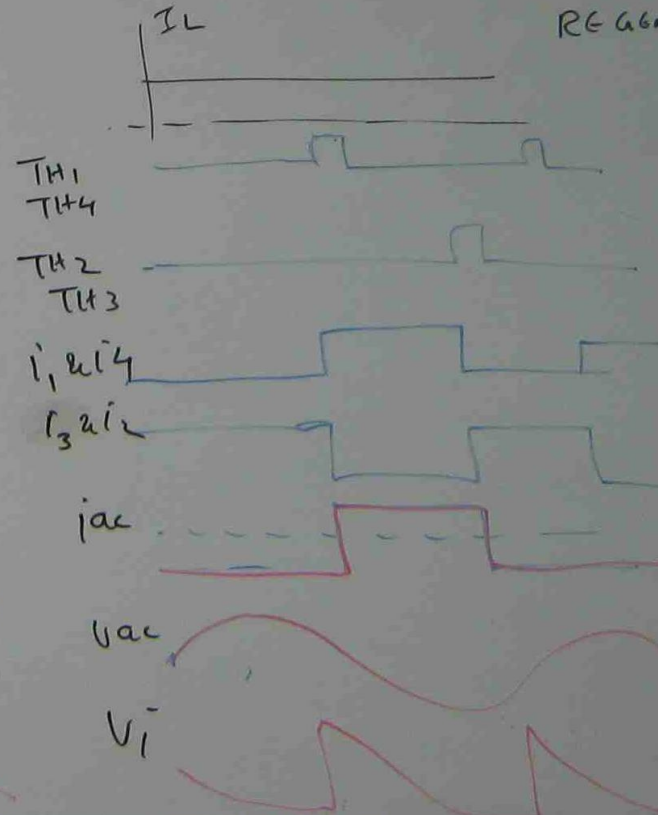


$I_L$  = DC LINK INDUCTOR CURRENT  
 $I_{ac}$  = MOTOR CURRENT  
 $V_i$  = INVERTER BRIDGE INPUT VOLTAGE  
 $V_{ac}$  = FUNDAMENTAL OF MOTOR VOLTAGE

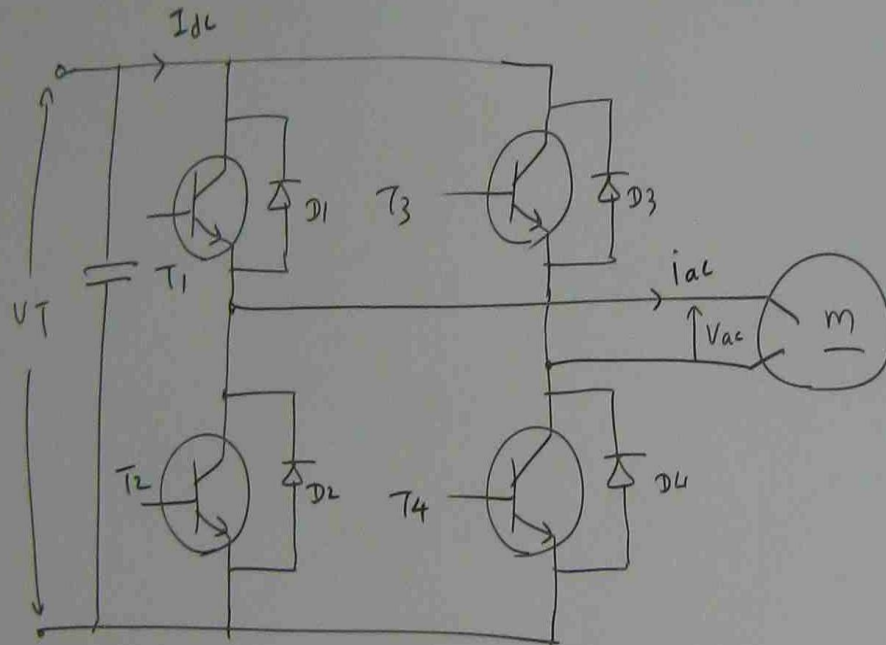
MOTURING AT FULL LOAD



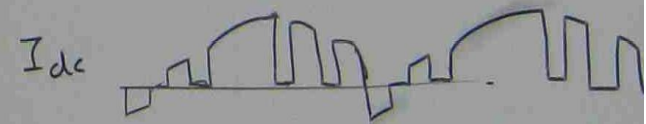
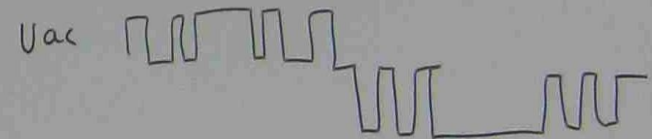
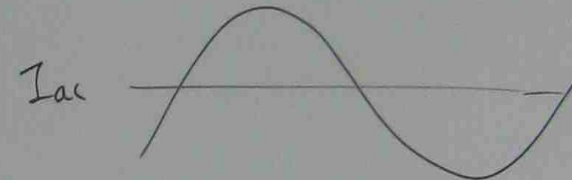
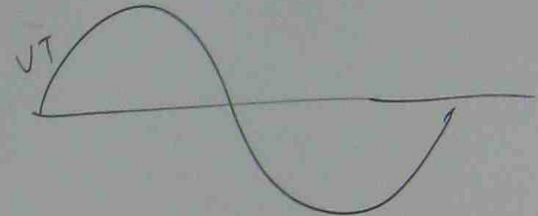
REGENERATION



# PWM INVERTER BRIDGE

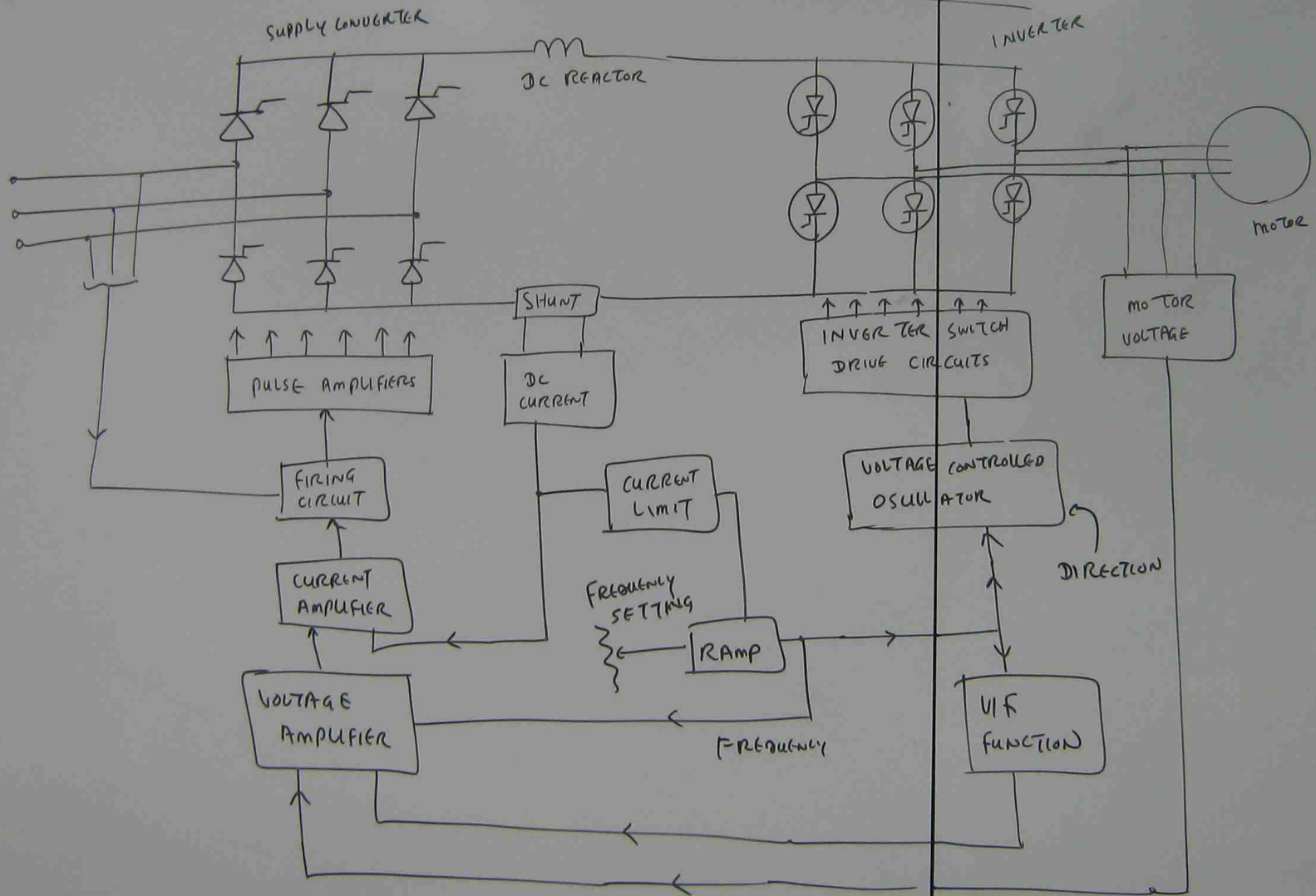


MOTORING AT FULL LOAD





# CONTROL OF SIX STEP CURRENT SOURCE DRIVE



BOTH RECTIFIER BRIDGE & INVERTER SCR ARE  
FIRED BY DRIVE CIRCUITS WHICH TAKE THE OSCILLATION  
SIGNAL FROM OSCILLATOR.

THE OSCILLATOR SENSES VOLTAGE FUNCTION  
MOTOR VOLTAGE IS FED BACK TO VOLTAGE AMPLIFIER  
& CURRENT AMPLIFIER THAT DRIVES THE PULSE  
AMPLIFIERS.

CURRENT FLOW IN THE SYSTEM IS ALSO SENSED AND  
CURRENT LIMIT FUNCTION IS APPLIED FOR  
FIRING CIRCUIT.