SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

AN AUTONOMOUS INSTITUTION

Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai

IV Semester

B.E-Mechanical Engineering

19EE407 – Electrical Machines and Drives

Regulations 2019

QUESTION BANK FOR IAE 3

	PART A
1	Mention the drawbacks of rectifier fed DC drives.
2	Evaluate the necessity of DC choke coil and freewheeling diode in a converter circuit.
3	Mention the advantages of chopper fed drive over converter fed drive.
4	State the applications of chopper fed DC drives.
5	Draw the circuit diagram of half controlled fed rectifier drive.
6	Stator voltage control is suitable for speed control of induction motors in fan and pump drives. Justify.
7	List any two applications of AC drives.
8	Define slip power recovery scheme.
9	List the different methods of speed control of induction motor.
10	Compare static kramer and static scherbius system.
11	State the application of microprocessor in the drives.
12	What are digital controlled drives.
13	Define V/f control method.
	PART B
1	With a neat sketch explain the operation of four quadrant operation of chopper fed DC drive used for steel rolling mills, railway locomotives.
2	Illustrate the operation of single phase half controlled converter fed separately excited DC motor with neat waveforms.
3	Interpret how the microprocessor is employed for a speed control of DC drive in crane and hoist application.
4	Describe the steady state analysis of the single phase fully controlled converter fed separately excited DC motor used in electric automobiles. Also Explain its Operation in motoring and regenerative braking mode.
5	Illustrate the operation of two quadrant operation of chopper fed DC separately excited motor drive with necessary diagram.
6	Interpret the operation of four quadrant operation of chopper fed DC separately excited motor drive used in steel rolling mills and electric elevators with necessary diagram.
7	A single phase, single pulse controlled rectifier is fed from 1 120 V, 60 Hz supply. This provides a variable voltage to the armature of a separately excited dc motor having an armature resistance of 10 ohm. Due to high inertia the motor is constant, providing a back emf of 50 V when thyristor is triggered continuously. Neglecting the armature inductance determine the average value of current in the motor.
8	Discuss in detail with suitable diagrams and waveforms of the V/f control technique of speed control method of induction motor.
9	Categorize the four modes of operation of Static Scherbius Drive with relevant industrial application.
10	Sketch a neat block diagram of field oriented control of a three phase induction motor used in robotic system and conveyer belt. Also list the functions of a microprocessor in the vector control.

11	Illustrate with a neat diagram of slip power recovery scheme using inverters.
12	Discuss the operation of single phase voltage regulator fed AC drives with a neat sketch.
13	Examine how the microprocessor is employed for control of drives which are used in floppy discs and X-Y plotters with a suitable block diagram.