



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 1

PART A	
1	Define Electric Drive.
2	What are the advantages of Electrical Drive?
3	Summarize the functions of power modulator.
4	Mention the different types of classes of motor duty.
5	Draw the functional block diagram of an electric drive system.
6	Define heating time constant.
7	What is intermittent duty?
8	Synchronous motor is not self-starting. Justify.
9	List the main feature of universal motor.
10	List the demerits of group drive.
11	Three phase synchronous motor will always run at synchronous speed. Justify.
12	Name the methods of starting of 3-phase synchronous motor.
13	List the functions of power modulator.
PART B	
1	Interpret the choice of selection of electric drive for paper rolling machine in industry.
2	Interpret how the power modulator, modulates the power from source to motor with a neat block diagram.
3	Compare with merits and demerits of various types of electric drives used in Rice Mill, Ceiling Fan and Cranes with a suitable diagram.
4	Assume with a proper data how the final temperature of electrical motor is reached only after infinite time. Also find the time taken to cool the motor when its disconnected from the power supply.
5	Draw and compare the motor duties for which are used in different application. The followings are (i) Conveyers, Centrifugal Pump and Fan (ii) Pressing, Cutting and Drilling Machine drives (iii) The Billet Mill Drives and Mine Hoist.
6	At full load of a 10 HP Motor, the temperature rise of a motor is 25°C after 1 hour and 40°C after 2 hours. Find (i) The final temperature rise on full load (ii) Heating time constant of motor (iii) Half hour rating if iron losses which remain constant are 80% of copper losses at full load. Analyze the results with Temperature characteristics
7	A motor has a thermal heating time constant of 45 min. When the motor runs continuously on full load, its final temperature rise is 80°C. (i) What would be the temp. rise after 1 hr, if the motor runs continuously on full load? (ii) If the temperature rise on 1 hr rating is 80°C, find the max. steady state temperature at this rating. (iii) How long will the motor take for its temperature to rise from 50°C to 80°C, if it is working at its 1 hr rating?
8	The temperature rise of a motor when operating for 30min on full load is 20°C and becomes 30°C when the motor operates for another 30min on the same load. Determine heating time constant and steady state temperature rise. Analyze the results with Temperature characteristics.

9	Apply Flemings left hand rule to find the direction of force acting on the current carrying conductor placed in the magnetic field. Also elaborate how the Back EMF is induced in a machine with a neat sketch.
10	Describe the construction and working principle of three phase rotating transformers with neat sketch.
11	Identify the DC Series motor that operates under both AC and DC supply. Can you illustrate why the speed of this motor is very high. Also draw its speed variation curve for both inputs with regard to load variation.
12	Illustrate the construction and operation of three phase motor which is started with the help of damper winding with a neat sketch. Also draw how the speed changes with respect to load.