

Sai Nath University

Assignment For B.Tech in Electrical Engg 8th Sem.

The Assignment will consist of two parts, A and B. Part A will have 5 short answer questions(40-60 words) of 4 marks each. Part B will have 4 long answer questions of 5 marks each.

All questions are compulsory.

These Assignments should be completed and submitted in written form by the student to his/her respective Faculty/ Examiners. Assignment Submission Dates are:

➤ **June-18**

List Of Suggested Questions

The list of suggested questions is for students to practice. Although optional, we recommend that students solve these questions, as they will help them in preparing for exams as well as in clearing the important concepts of the subject.

List of Practical and suggested practical's

The list of practical's should be done by the students in their Lab Sessions. These are the basic practical's, which each student should be able to do himself independently. While the list of suggested practicals are optional, but it is recommended that students should perform those practical so as to have a thorough knowledge of the subject

Education Delivery Schedule (EDS)

As per University Semester scheme, the minimum contact hours of each paper has been

Divided into two hours theory and practical class.

The faculty will maintain this attendance paper wise for his/her batch.

Subject Code	Subject Name
BTEE801	MACHINE DRIVES
BTEE802	DESIGN&ESTIMATION OF ELECTRICAL SYSTEM
BTEE803	ELECTRICAL MACHINE DESIGN
BTEE804	PROJECT
BTEE805	PRACTICAL

SAI NATH UNIVERSITY

Cover page of Assignment

ID NUMBER
NAME
COURSE	BTECH.....
STREAM	ELECTRICAL.....
SEM	8 TH
SUBJECT CODE
SUBJECT NAME

Assignments will be completed by the Student in his/her own handwriting.

SUB.CODE-BTEE801
SUB-MACHINE DRIVES

Part A

- Q1.** What is electric drive system ? Draw its block diagram and explain its working.
- Q2.** What is chopper fed d.c. drive ? Explain with the help of a schematic diagram and waveforms.
- Q3.** A 230 V d.c. series motor used in lifts has a resistance of 0.25Ω . It draws 40 A at a speed of 1500 rpm. Assume that the magnetization curve is a straight line between zero and 40 A, and the flux per pole at 60 A is 20% greater than at 40 A. Determine the resistance to be added in series with the motor for a speed of 3000 rpm at the current of 15 A.
- Q4.** Explain the working of Current Source Inverter (CSI) controlled 3-phase induction motor drive in the schematic, waveform and expressions.
- Q5.** What is cycloconverter ? Explain its application in synchronous motor drive with schematic, waveform and expressions.

Part B

- Q6.** Write short notes on any two of the following
- (a) Solar and battery powered drives
 - (b) Four quadrant operation of d.c. drive
 - (c) Variable frequency control of synchronous motor
- Q7.** What is brushless d.c. motor ? How is its speed controlled with various methods ?
- Q8.** Explain the slip power recovery scheme in a.c. motor drive system.
- Q9.** Draw the speed-torque characteristic of 3-phase induction motor and explain its usefulness in drive application

SUB.CODE-BTEE802

SUB-DESIGN & ESTIMATION OF ELECTRICAL SYSTEM

Part A

Q1. What are the various methods of grounding ? Explain its effect, if system is not grounded.

Q2. How are power factor correction circuits able to improve the power quality ? Explain in detail.

Q3. What is the importance of the wiring diagram ? Explain single line and multi-line wiring diagrams.

Q4. Write short notes on any three of the following

(a) Earnest money and Security deposits - (b) Preparation of comparative statement

(c) Necessity of earthing (d) Various types of fans and their sizes

Q5. Distinguish between Overhead vs Underground feeders.

Part B

Q6. Explain how a 2-wire d.c. distributor with concentrated loads fed at one end can be represented by a single line diagram.

Q7. Make a comparison of different types of wiring on the basis of their salient features and applications.

Q8. explain the term 'service connection'. Make a comparison of domestic service connection and industrial service connection.

Q9. Classify substations. Explain each type of substation. Draw a layout of any one.

SUB.CODE-BTEE803

SUB-ELECTRICAL MACHINE DESIGN

Part A

- Q1.** Discuss the factors affecting permeability and hysteresis loss.
- Q2.** Explain the magnetization and demagnetization of a ferromagnetic material.
- Q3.** Discuss the dielectric properties in an alternating field. Briefly explain the complex dielectric constant of non-dipolar solids.
- Q4.** How is insulation of a material measured ? Explain in brief the effect of moisture on an insulating system.
- Q5.** Write short notes on any two of the following
- (a) Relaxation, collision time and mean free path
 - (b) Insulating material for electronic equipment (c) Magnetostriction phenomenon

Part B

- Q6.** Discuss the power-angle characteristics of salient pole synchronous machines.
- Q7.** Write short notes on any two of the following
- (a) Universal Motor (b) Slip ring 3 PHASE Induction Motor
 - (c) Synchronous Condenser
- Q8.** Derive the expressions for air gap power and electromagnetic torque developed from the equivalent circuit of an induction motor.
- Q9.** Explain the working principle of 1-phase capacitor start capacitor run induction motor. Draw a neat connection diagram and torque-speed characteristic.

SUB.CODE-BTEE804

PROJECT LIST

- Single Phase Induction Motor With Smooth Start
- Checking Phase Sequence of 3 Phase Supply
- 6 Volt DC to 10 Volt DC Converter
- Switching Load By Touch
- Emergency Auto Led Light

SUB. CODE-BTEE805

SUB-ELECTRICAL MACHINE DRIVES

LIST OF EXPERIMENTS

1. Regulation of an alternator by EMF & MMF methods
2. V curves and inverted V curves of synchronous Motor
3. Load test on three-phase squirrel cage Induction motor
4. Speed control of three phase slip ring Induction Motor
5. Load test on single phase Induction Motor
6. Study of DC & AC Starter