Department of Electrical Engineering
Assignment
Date: 26/06/2020

Course Details

Course Title: DC Machines & Transformers **Module:** 2nd (B Tech)
Instructor: _____ **Total Marks:** 50

Student Details

Name: _____ **Student ID:** _____

Note: Draw neat diagram where necessary. Assume missing details if required.

Q1.	**(a)**	Why replacing winding in a shell type transformer is not an easy job? Explain briefly.	**Marks 05**
	(b)	Why the width of the central limb in a shell type transformer is double to the width of the outer limbs? Explain briefly.	**Marks 05**
Q2.		In a transformer, when primary voltage is stepped up, primary current is stepped down. Moreover, the efficiency of distribution transformer is 60 to 70 % and not 100%. Justify these statements.	**Marks 10**
Q3.		A single phase, 50Hz, transformer is built on an iron core having an effective cross sectional area of 120 cm^2. The voltage on the primary side is 3000V while on secondary side is 200V. The number of turns on the low voltage side are 50. Calculate: a) The number of turns on the high voltage side. b) The value of maximum flux density.	**Marks 10**
Q4.	**(a)**	What will happen if the core of a transformer has infinite permeability? Explain briefly.	**Marks 05**
	(b)	Why the magnetizing current ($I\mu$) lags behind input voltage (V_1) by 90° in an ideal transformer? Explain briefly.	**Marks 05**

Q5.	**(a)**	What will happen if pole shoes are not present in a DC machine? Explain briefly.	**Marks 05**
	(b)	What will happen if a commutator is not present in a DC generator? Explain briefly.	**Marks 05**