**Middle East Tecnical University**

**Electrical and Electronics Engineering Department**

**EE 564 Electric Machine design**

**Take Home Exam**

Date: 4-1-2024

**Due:** 23-1-2024

1. Winding data and test data for your motor is given previously. Please use them in this homework. Please find the your commercial motor lamination drawing attached to this page.
2. Develop an Excel software
   1. To input lamination geometry information
   2. Winding data
   3. Motor voltage , connection type
   4. Parallel series connection of poles
   5. Lamination B-H curve
   6. Lamination core loss data

Please check the explanation I gave during the lecture

If you have already prepared a data input page you can extend it and use with this software. The parameter calculation from test data and data input page can be the first sheet. In other words make the calculations required here on the same Excell software you prepared earlier. (use different sheets for performance calculation of the motor you designed and the commenrcial motor)

1. Calculate parameters of your motor from the data entered.
2. Compare calculated parameters with measured ones and comment.
3. Prepsre and Excel sheet to calculate performance of your motor.
4. Compare calculated performance with test data (No load, and load performance.

ie compare motor currents, power factor. Core and cuper losses , efficiency, rpm, starting torque, maximumu torque, load torque )

**HINT**: If you plot torque vs motor speed, you can use a curser t read the required information from the plot.









