

Good morning/afternoon **Sir**,

I, **Shrimoy Nayak** bearing roll number-121EE0705 made this project by my own using python. In python I used “Tkinter”, which is Python’s de-facto standard GUI(Graphical User Interface) package. In simple it is a way in which we can create GUIs in python. Tkinter is included in a standard Python distributions.

First, we import the Tkinter’s library and create a input window where the user will provide the required data for equivalent parameter calculation. Then we create the input variables of both open circuit and short circuit tests. The variable include open circuit power, volt , current and short circuit power, volt, current.

Providing the input window’s title, dimensions and a icon for the title bar as well as the background image .

Then defining a new window in which the output equivalent parameters will be shown. Same way as the input window we need to give a title , icon, and dimension and a background image which is the equivalent parameter circuit diagram.

Open circuit test :

The purpose of the open-circuit test is to determine the no-load current and losses of the transformer because of which their no-load parameter is determined.

W_o – wattmeter reading

V_o – voltmeter reading

I_o – ammeter reading

The no-load power factor is a ie.

$$\cos\Phi = W_o/V_o I_o$$

Working component I_w is

$$I_w = W_o/V_o$$

Magnetizing component is

$$I_m = [I_o^2 - I_w^2]^{(1/2)}$$

b is the sin component

$$=(1-a^2)^{0.5}$$

Magnetizing Reactance

$$=V_o/I_o.b$$

Core loss resistance

$$=V_o/I_o.a$$

Short Circuit Test :

The short circuit test is performed for determining the following:

1. It determines the copper loss occurs on the full load. The copper loss is used for finding the efficiency of the transformer.
2. The equivalent resistance, impedance, and leakage reactance are known by the short circuit test.

Wc – wattmeter reading

Vsc – voltmeter reading

Isc – ammeter reading

Impedance

$$=V_{sc}/I_{sc}$$

Equivalent Resistance

$$=P_{sc}/I_{sc}^2$$

Equivalent Reactance

$$=(\text{Impedance}^2 - (\text{Equivalent Resistance})^2)^{0.5}$$

Then we provide the code for the input data and text which is to be shown on the display page. Using the entry command we can provide space for user to give input variables data.

Then performing the main execution loop , our code is complete.

FLOW CHART FOR THE PROGRAM

