

## **EXP. No (4)**

# **Performance of Medium Transmission Line (T-Method)**

### **Introduction:**

The charging current in overhead lines more than 70 km cannot be neglected up to 200 km, it is possible to represent the line by the nominal for ( $\pi$ -method). In nominal T-method, the shunt admittance is considered to be lumped at the middle of the line while series impedance is split in two equal parts.

### **Object of Experiment:**

The aim of experiment is to:

- 1- To determine parameters of (R, XL, Y).
- 2- To study characteristics of transmission line ( $\eta\%$ ,  $\%E$ ).
- 3- To plot the vector diagram.

### **Apparatus:**

3 ammeters, 4 voltmeters, 2 wattmeter, variable ac supply, suitable variable load.

### **Procedure:**

- 1- Connect the circuit diagram as shown in fig (1).
- 2- Set the voltage source to its lowest value and change it gradually to its nominal value.
- 3- Record the reading of the instruments.
- 4- Repeat step 3 several types with different type of load.
- 5- Plot the vector diagram.
- 6- Calculate the efficiency ( $\eta\%$ ) and voltage regulation ( $\%E$ ) for each set of records and then draw them against ( $I_r$ ).

