

Open circuit and load characteristics of DC shunt generator:

Aim :

To draw the open circuit and load characteristics of DC shunt generator.

APPARATUS REQUIRED :

Laptop with internet connection.

THEORY :

DC generator converts mechanical energy into electrical energy.

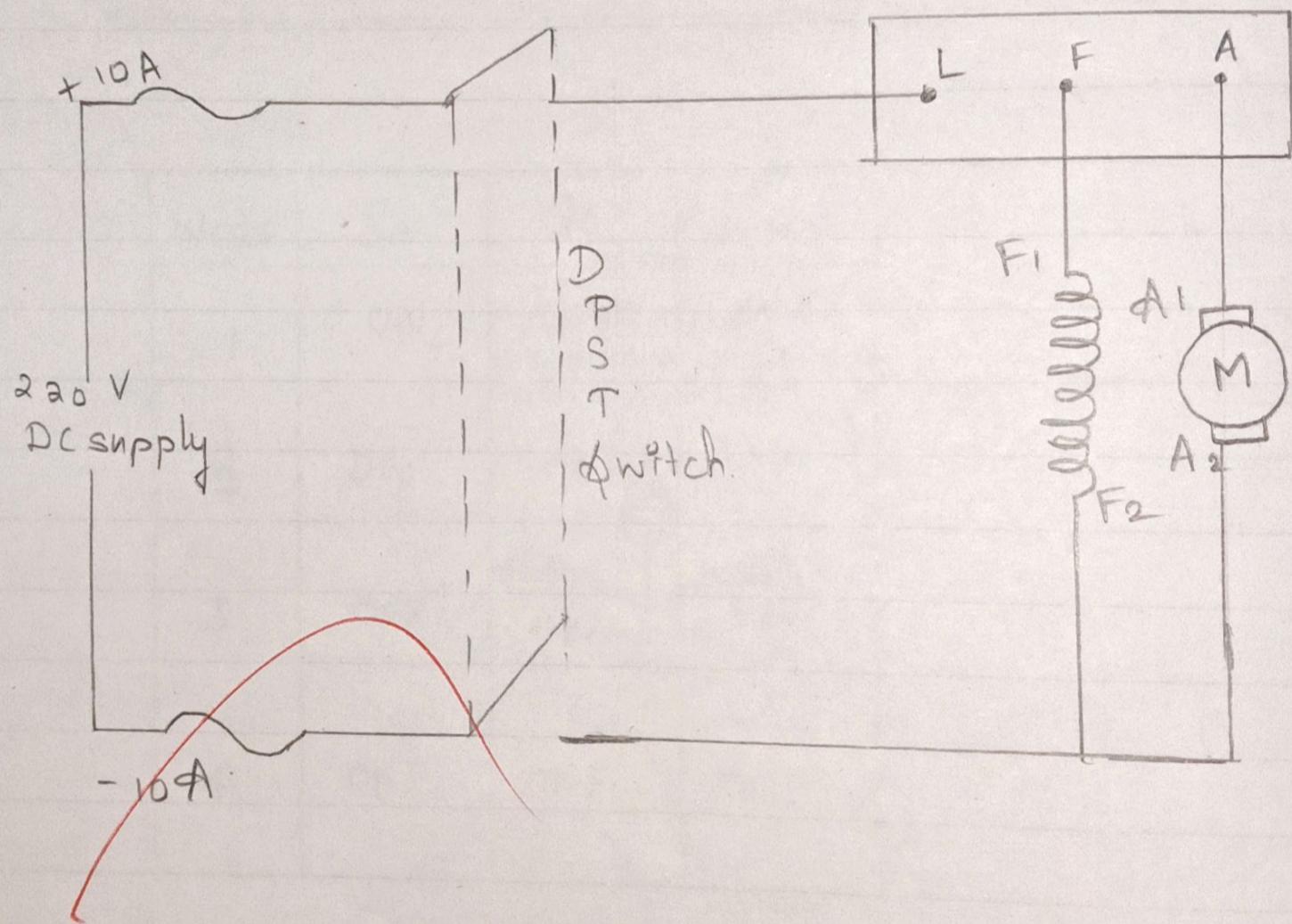
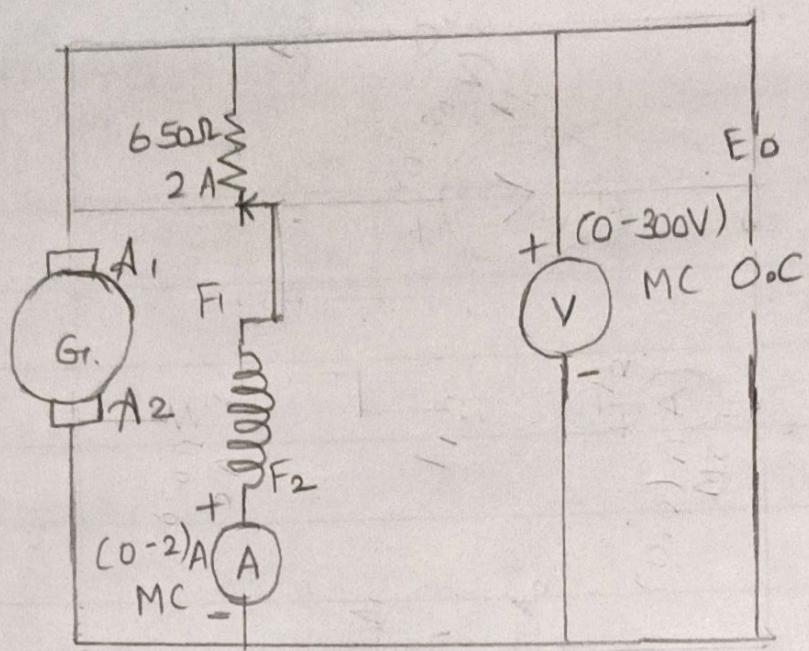
DC generator works on the principle of Faraday's Law. It states that "When a conductor cuts the magnetic flux and em.f is induced".

The field winding and armature winding are connected in parallel in the shunt generator.

Open circuit Characteristics :

It is also known as Magnetisation characteristics or no load characteristics.

It is a graph drawn between open circuit voltage (E_O) and field current (I_F).



Load circuit characteristics :

It is a graph drawn between load voltage (V_L) and load current (I_L). It is also known as external characteristics.

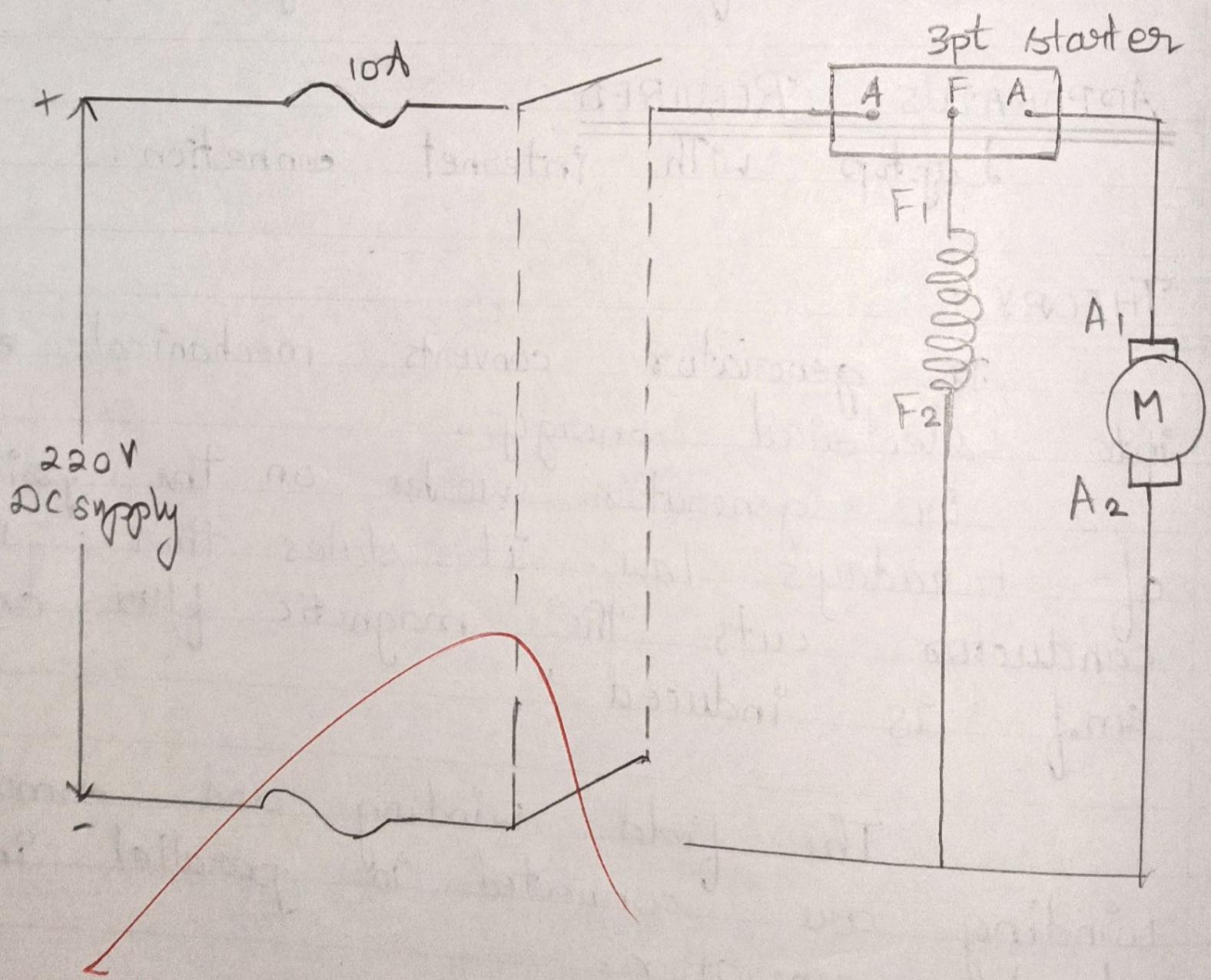
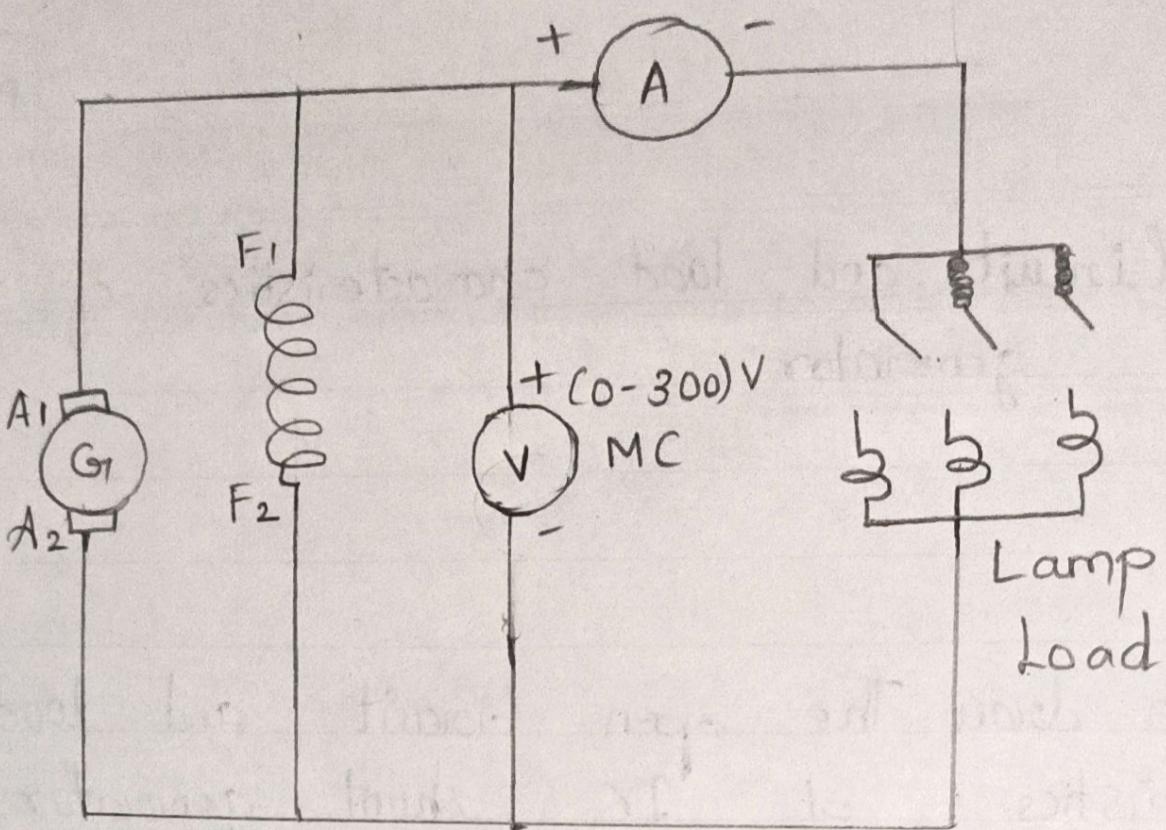
PROCEDURE :

Open circuit characteristics :

1. Connections are made as per the circuit diagram.
2. Switch on the supply, and note down the readings (voltage and current).
3. By varying the field rheostat different values of open circuit voltage and field current are noted.
4. Plot the graph between open circuit voltage and field current.

Load characteristics :

1. Connections are made as per the circuit diagram.
2. ~~Switch on the supply and note the no load voltage and current.~~
3. ~~By connecting different nodes, different values of load voltage and current are noted.~~
4. Plot the graph between load voltage and load current.



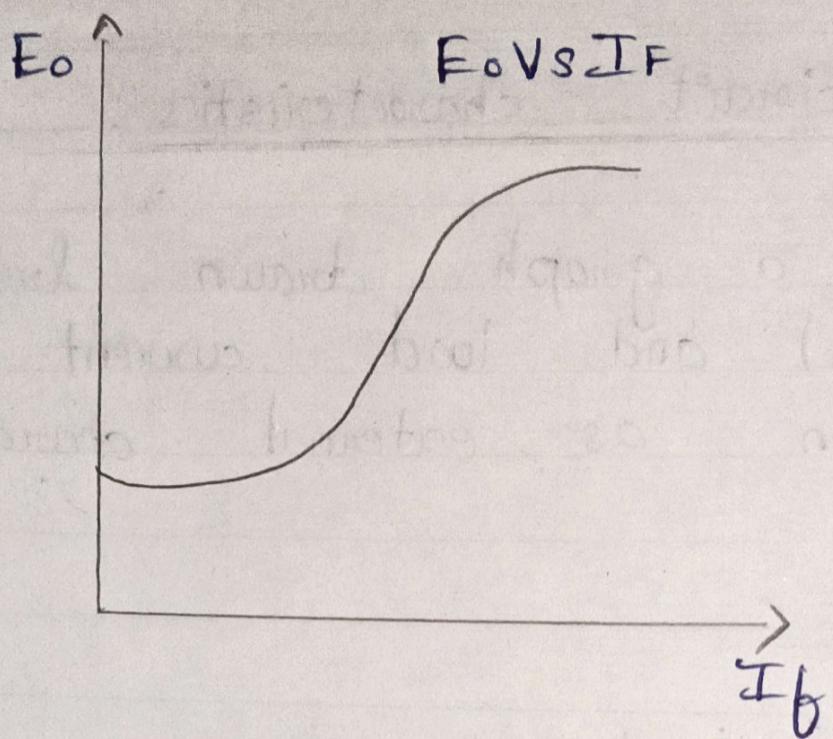
Open Circuit characteristics .

S.No	VOLTAGE(V)	CURRENT(A)
1	115	0.16
2	120	0.18
3	126	0.20
4	129	0.21
5	133	0.23
6	135	0.24
7	138	0.28
8	142	0.30
9	0	0

Load characteristics

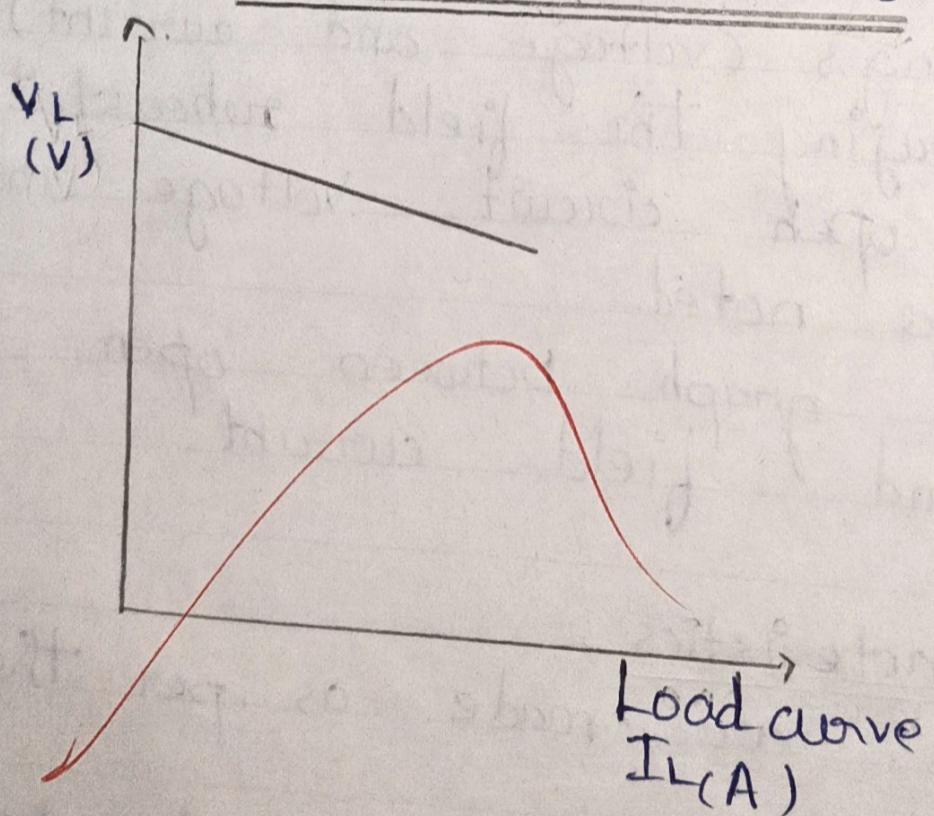
S.No	CURRENT(A)	VOLTAGE(V)
1.	2.8	212
2.	3.6	205
3.	7	195
4.	10.2	184
5.	12.7	176
6.	5.5	200
7.	11	179

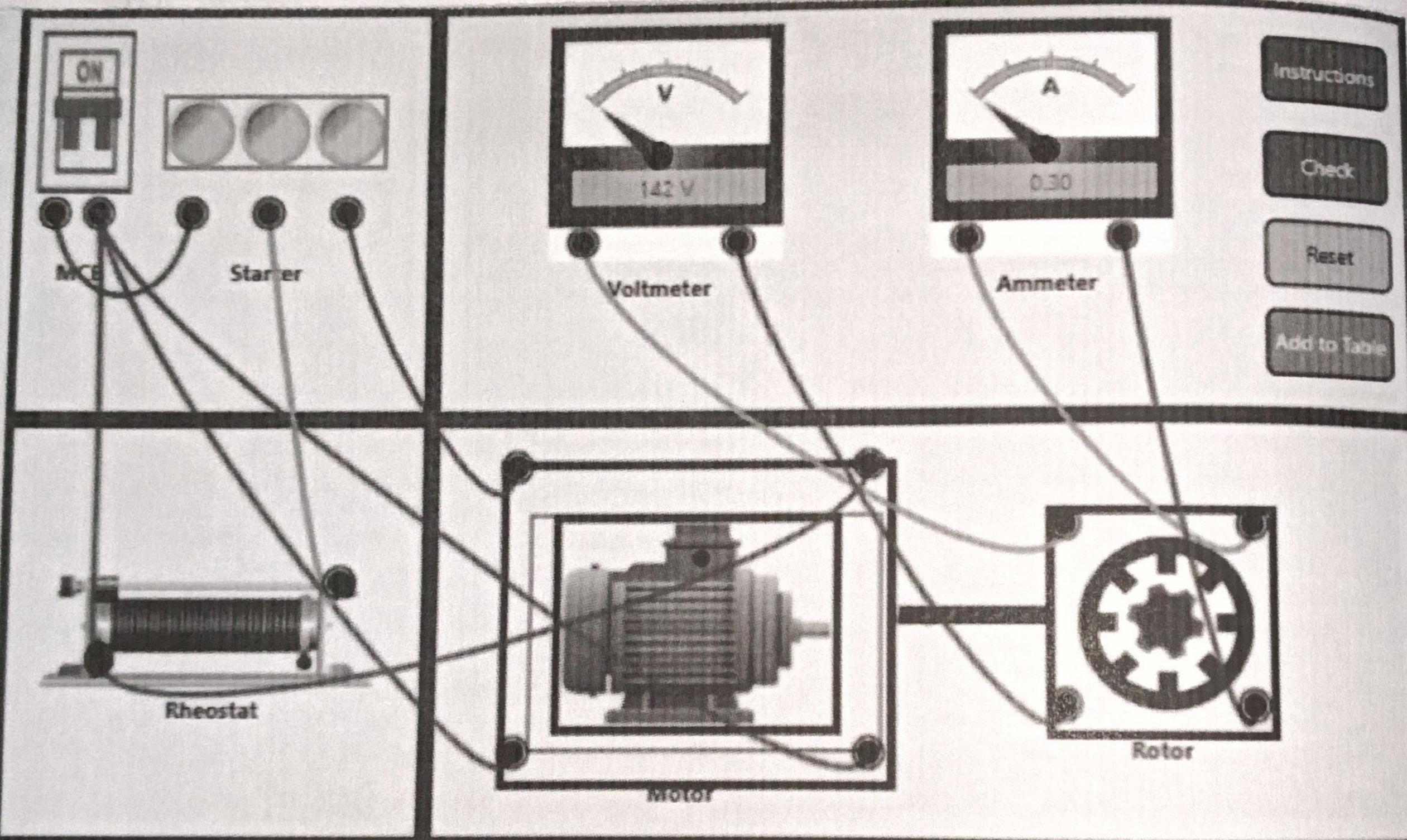
MODEL GRAPH :
Open circuit characteristics



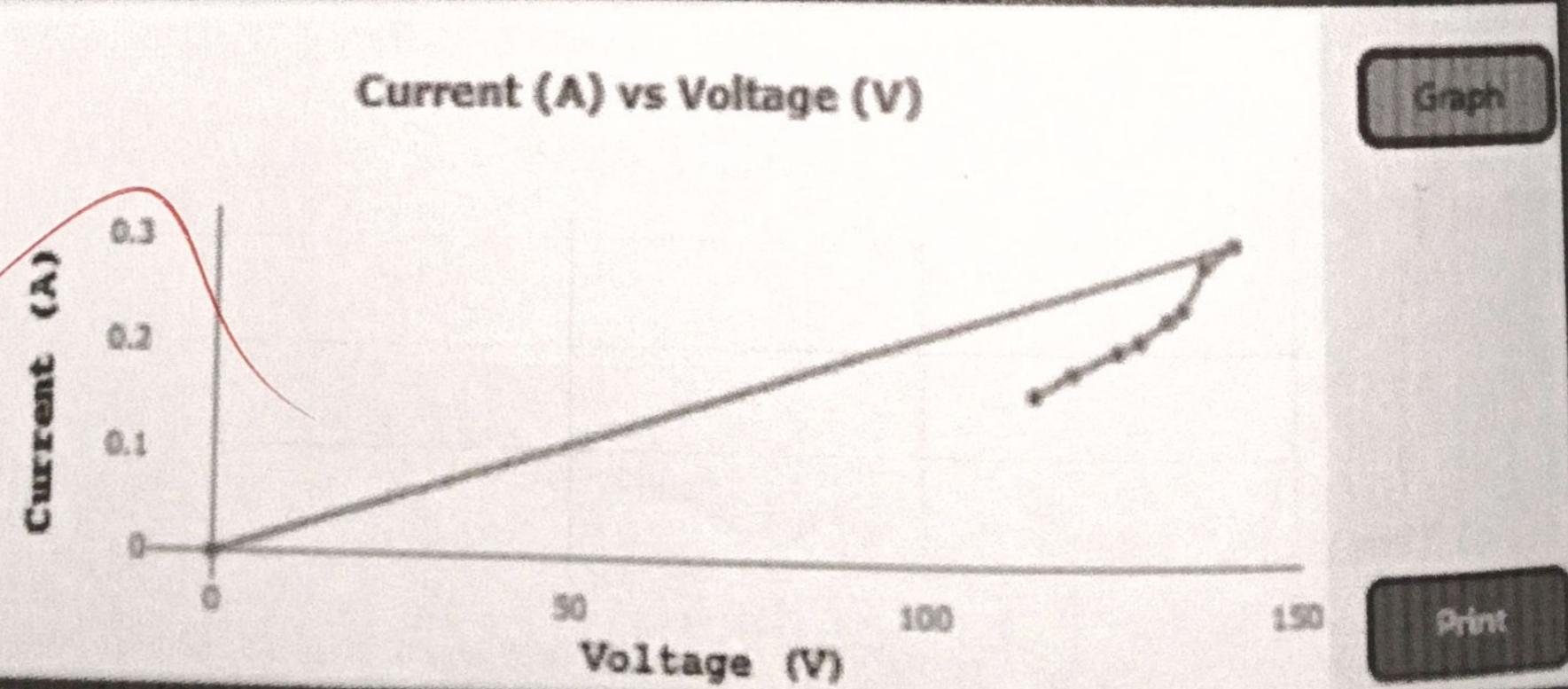
MODEL GRAPH :

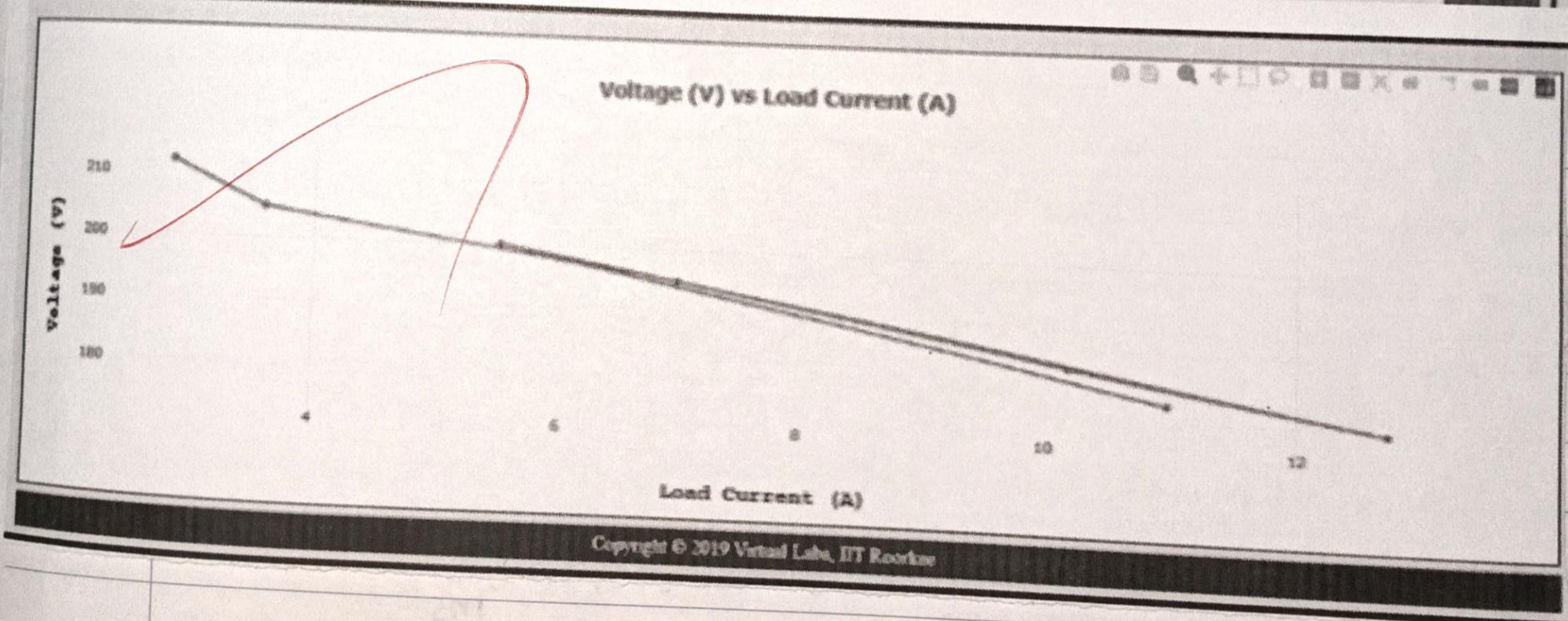
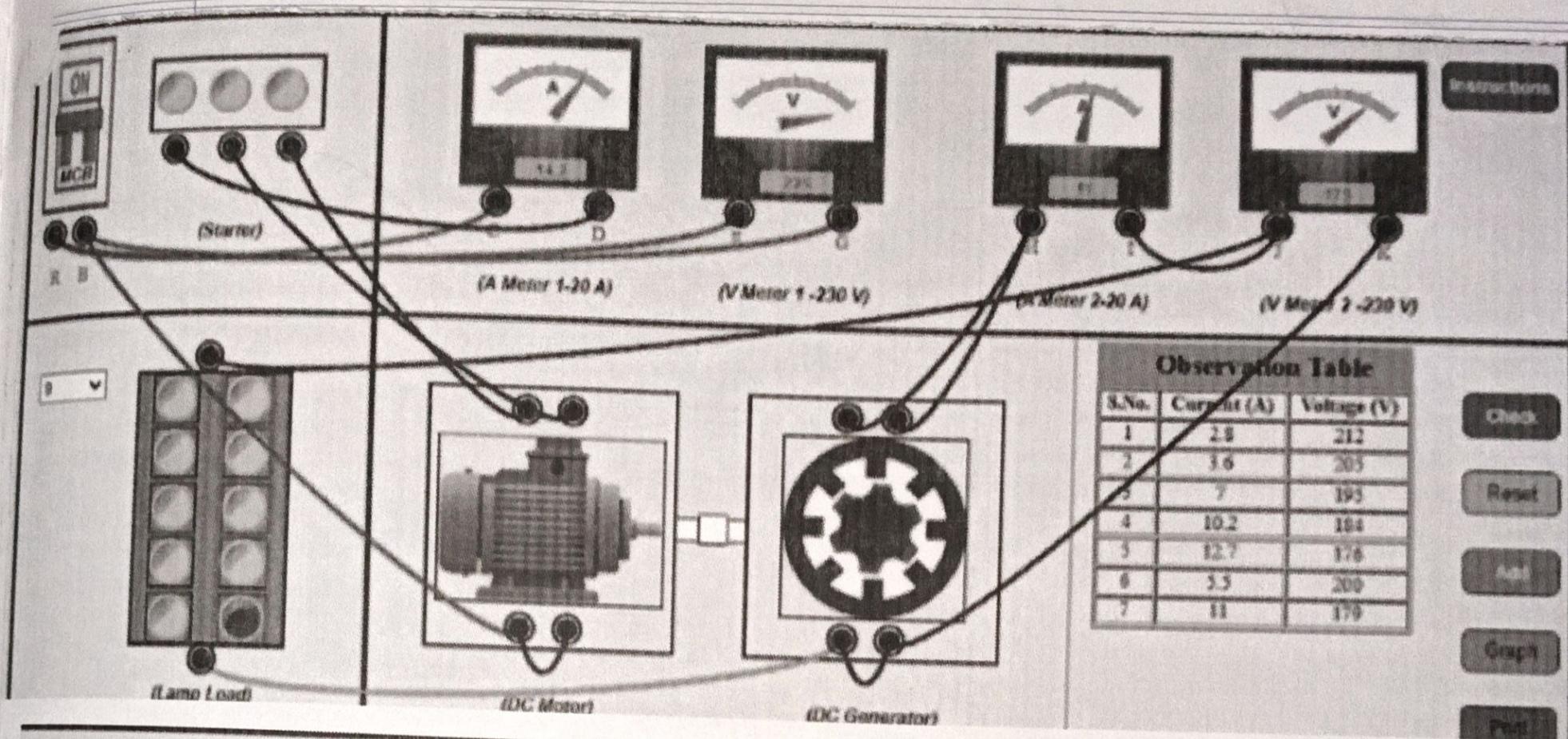
Load characteristics





OBSERVATION TABLE		
S.No.	Voltage (V)	Current (A)
1	115	0.16
2	120	0.18
3	126	0.20
4	129	0.21
5	133	0.23
6	135	0.24
7	138	0.26
8	142	0.30
9	0	0

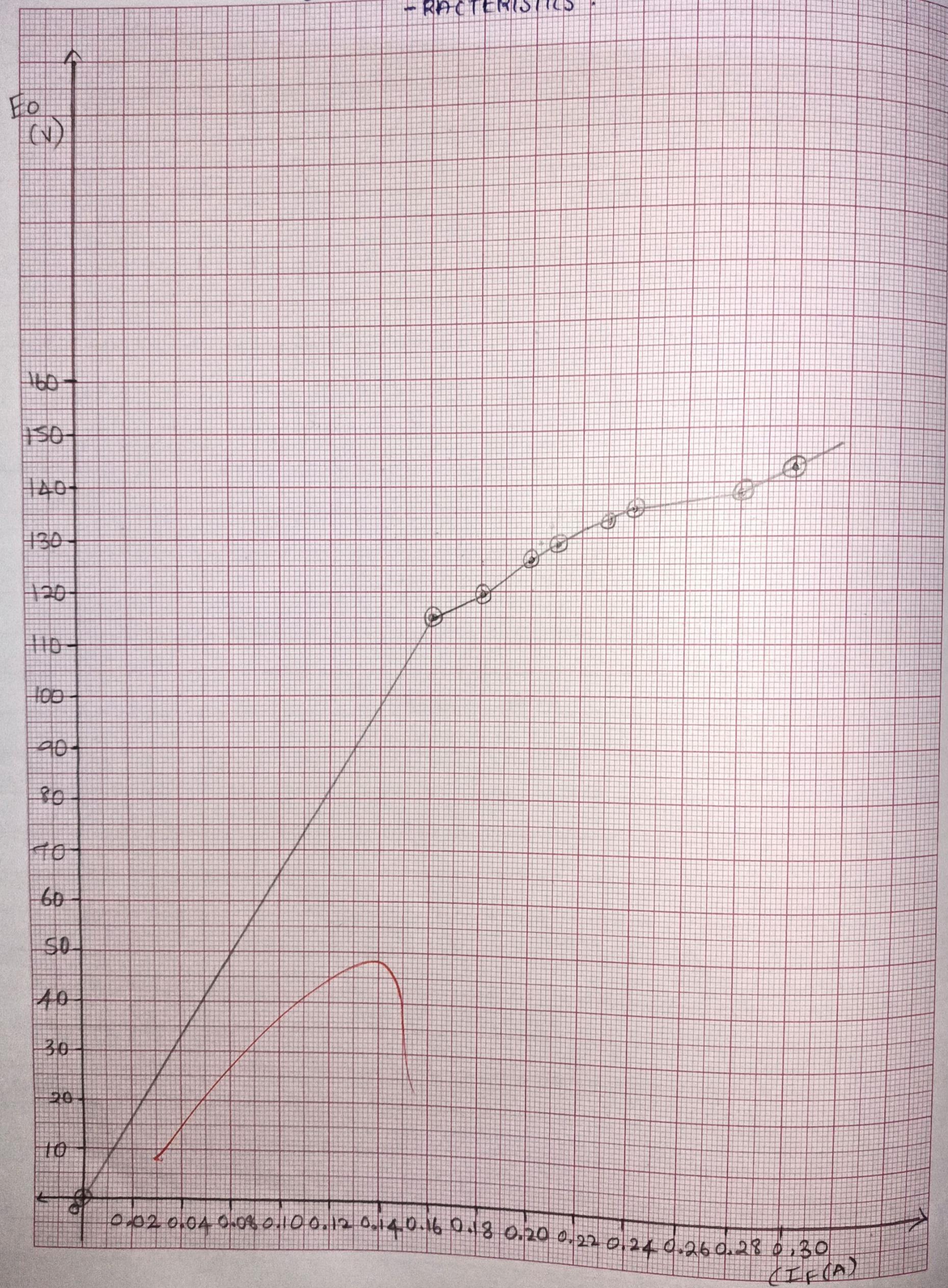




✓ RESULT :
Thus the open circuit and load characteristics of DC shunt generator were verified successfully.

OPEN CIRCUIT CHARACTERISTICS

x axis 1cm = 0.02A
y axis 1cm = 10V



LOAD CHARACTERISTIC \times axis $1\text{cm} = 1\text{A}$
 y axis $1\text{cm} = 20\text{V}$

