Transistor Characteristics

Common Emitter Configuration

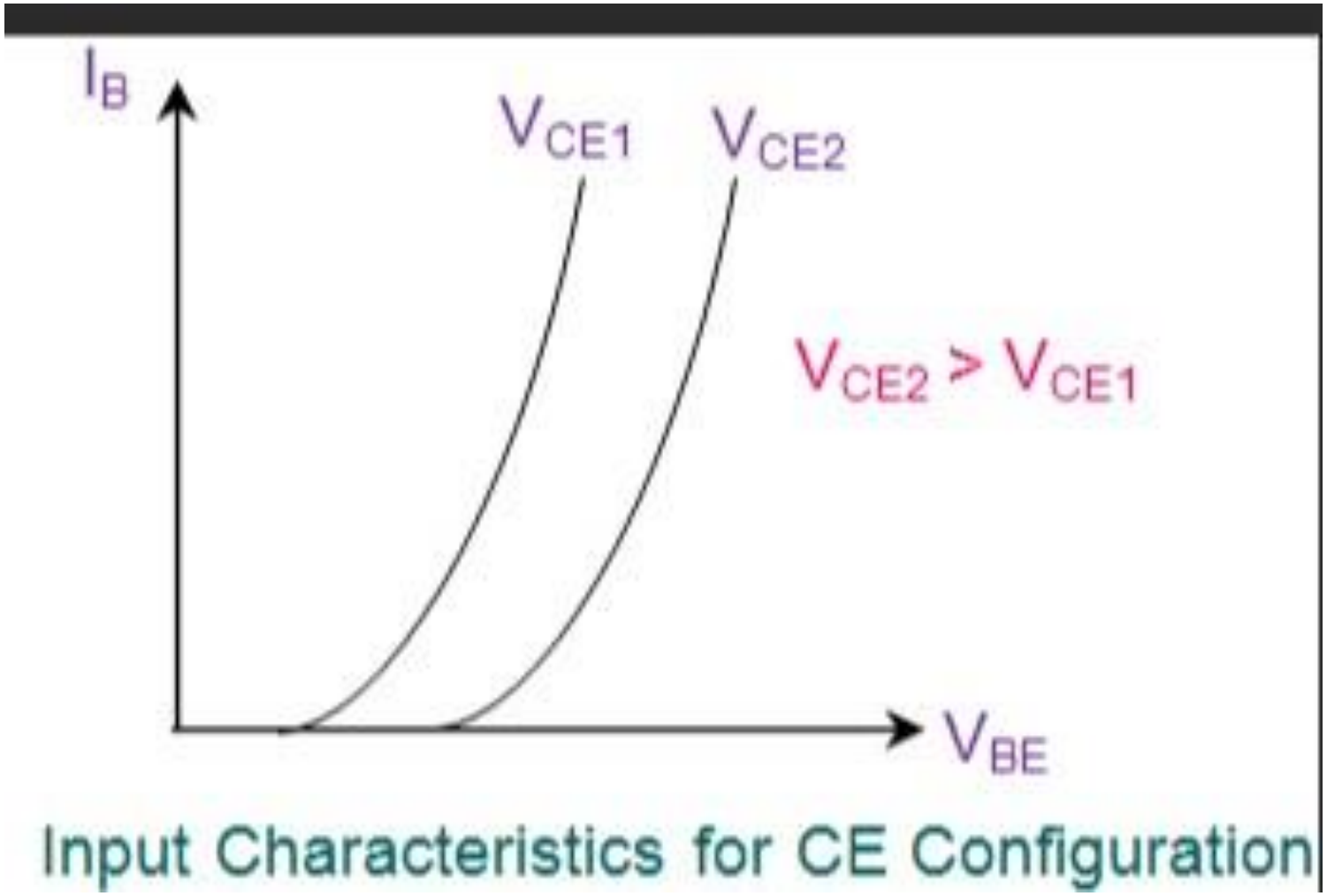
Objectives:-

- To plot and analyze the input characteristics of a common emitter transistor circuit.
- To plot and analyze the output characteristics of a common emitter transistor circuit.

Theory:-

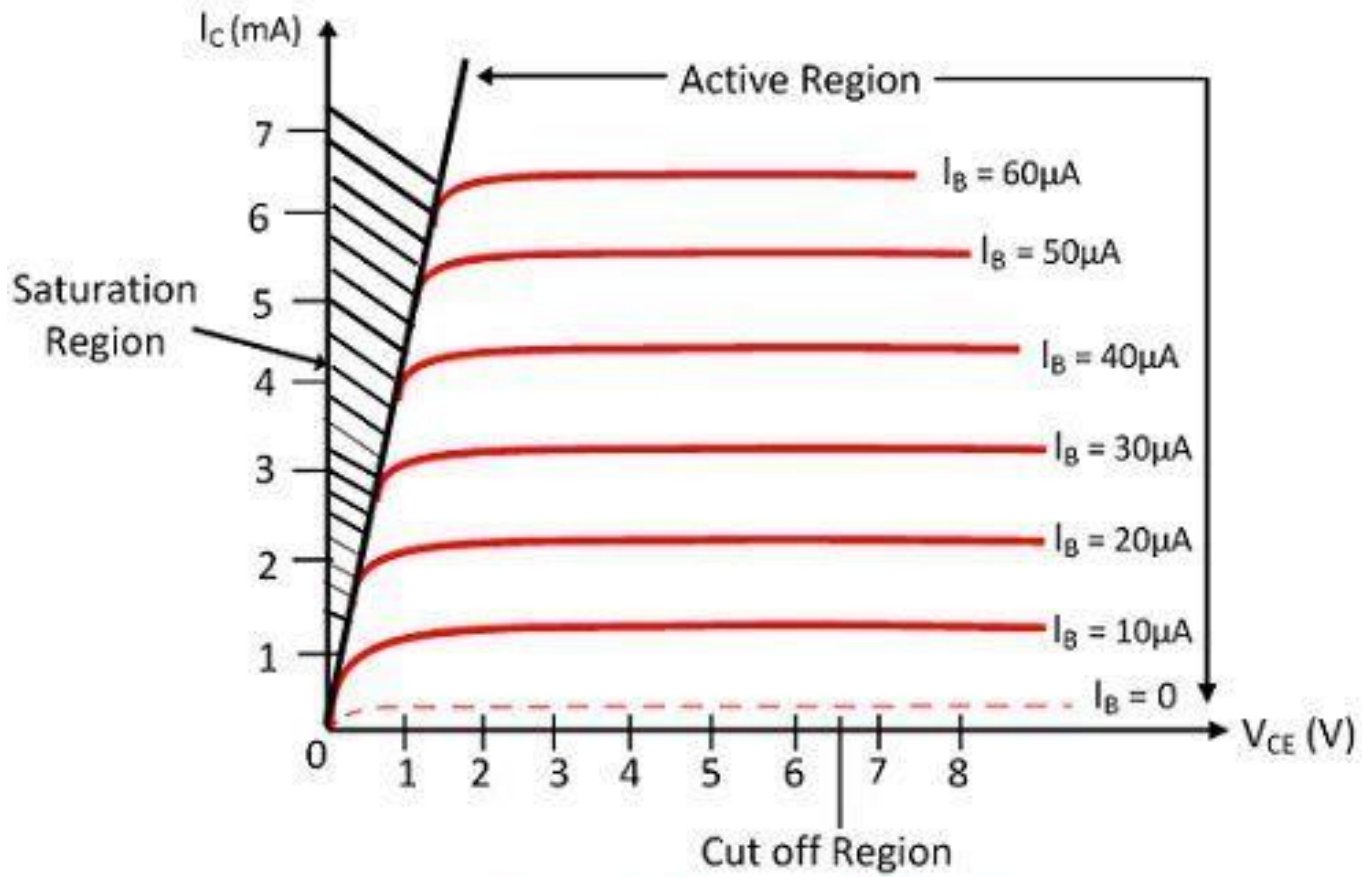
- Theory should contain
  (a) Transistor and its types
  (b) Common Emitter configuration of transistor.
- Input Characteristics of BJT (CE configuration)
  (a) Relation Between Input voltage V_{be} and input current I_b as $I_b = f(V_{be})$ for V_{ce} constant.
- Output Characteristics of BJT (CE configuration)
  (b) Relation Between output voltage V_{ce} and output current I_c as $I_c = f(V_{ce})$ for I_b Constant.

Transistor I/P characteristic Sample Curve



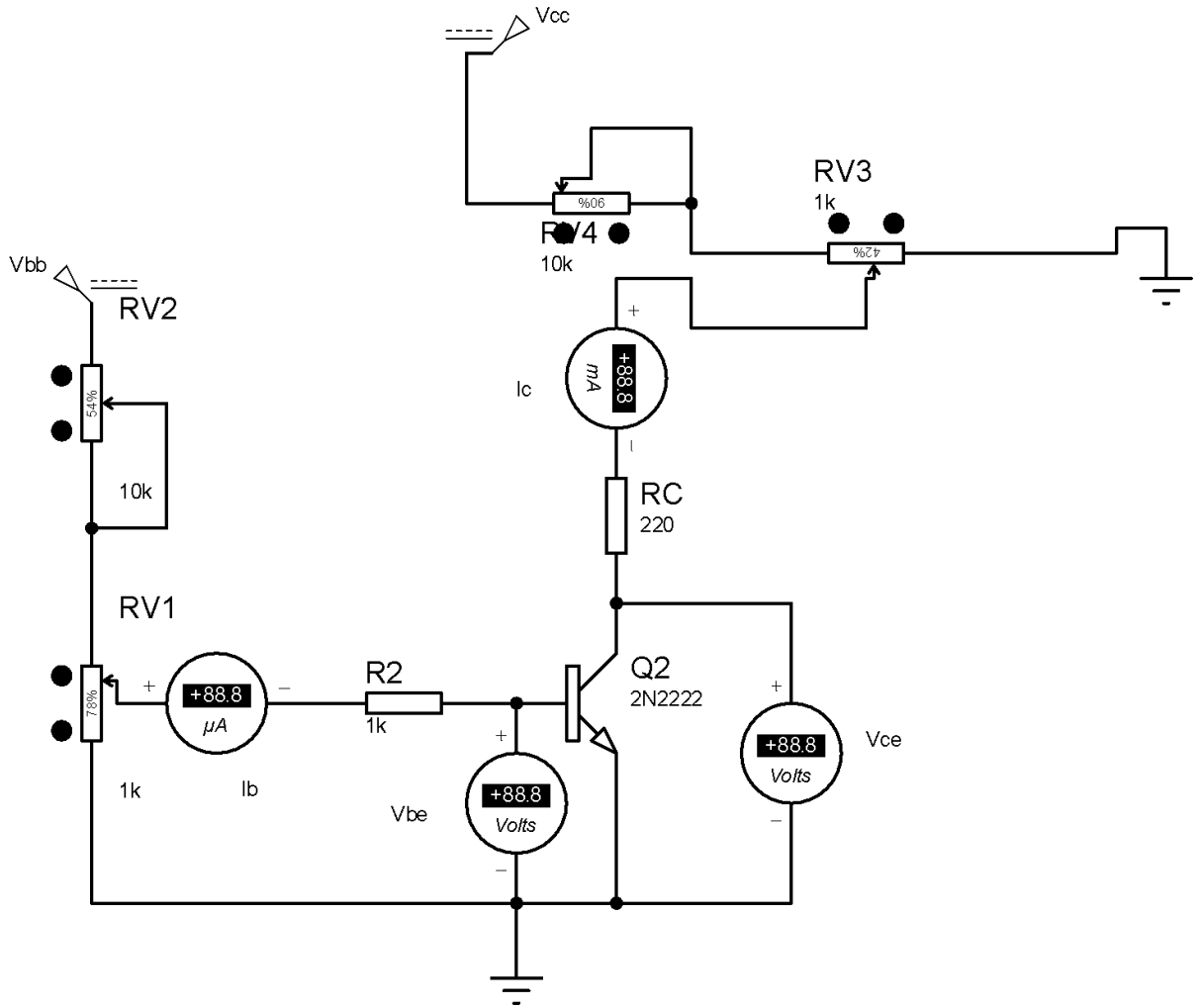
Input Characteristics for CE Configuration

Transistor o/p characteristic Sample Curve



Output Characteristic Curve

Transistor Characteristic Circuit Diagram



Transistor I/P characteristic Table

V_{be}(v)	I_b(ua)
	0
	0
	5
	10
	20
	50
	100
	150
	200
For V_{ce} =0 v constant	

V_{be}(v)	I_b(ua)
	0
	2
	5
	10
	20
	50
	100
	150
	200
For V_{ce}= 2 v constant	

Transistor O/P characteristic Table

For I_b = 20uA constant	
V_{ce} (v)	$I_{c\ (mA)}$
0.1	
0.2	
0.4	
0.8	
1	
2	
3	
4	
5	
8	

For I_b = 40uA constant	
V_{ce} (v)	$I_{c\ (mA)}$
0.1	
0.2	
0.4	
0.8	
1	
2	
3	
4	
5	
8	

For I_b = 80uA constant	
V_{ce} (v)	$I_{c\ (mA)}$
0.1	
0.2	
0.4	
0.8	
1	
2	
3	
4	
5	
8	

Sample Graph