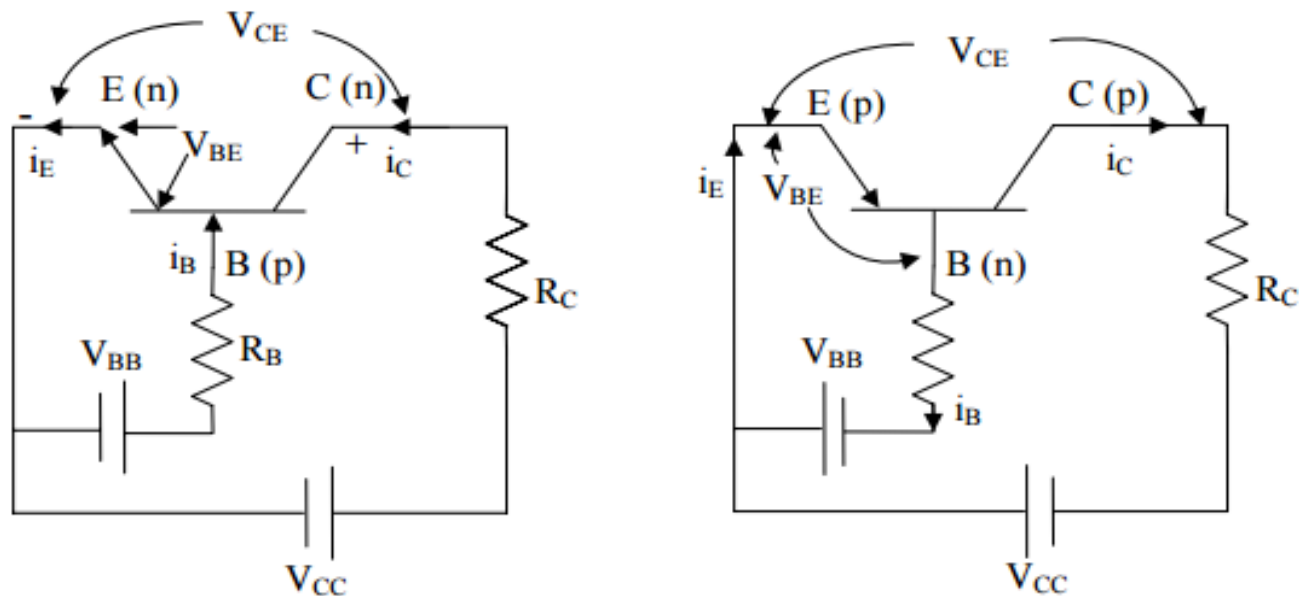


# Power Bipolar Junction Transistor (BJT)

Power Bipolar Junction Transistor (BJT) is the first semiconductor device to allow full control over its Turn on and Turn off operations. It simplified the design of a large number of Power Electronic circuits that used forced commutated thyristors at that time and also helped realize a number of new circuits.

A junction transistor consists of a semiconductor crystal in which a p type region is sandwiched between two n type regions. This is called an n-p-n transistor. Alternatively an n type region may be placed in between two p type regions to give a p-n-p transistor



$$I_C = \alpha I_E + I_{CS}$$

Where  $I_{CS}$  is the reverse saturation current of junction JCB But

$$I_E = I_B + I_{BC}$$

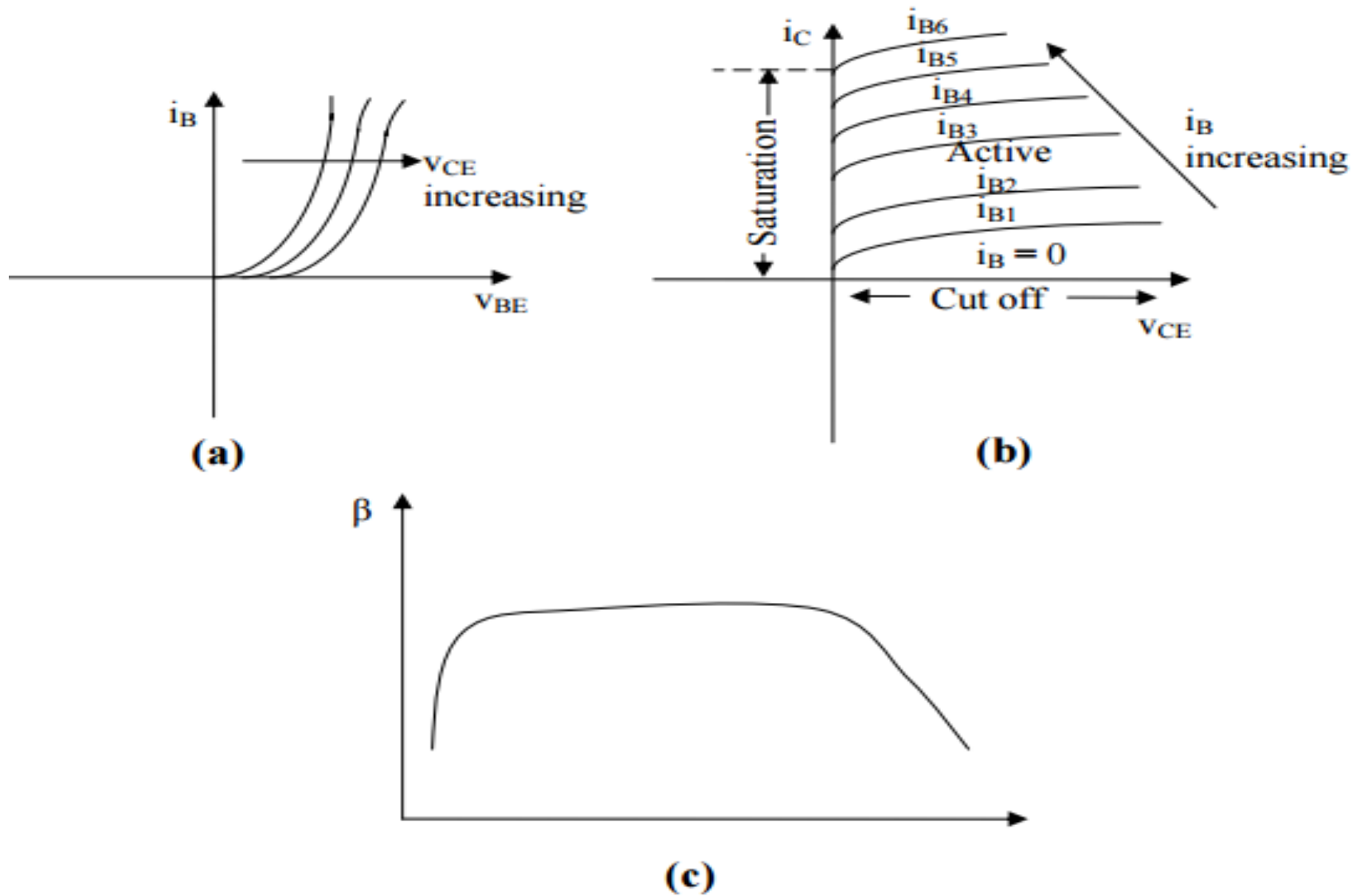


Fig.- Input, Output and Current Gain Characteristics of npn Transistor