

# Ch:7 - Basic Electronics.

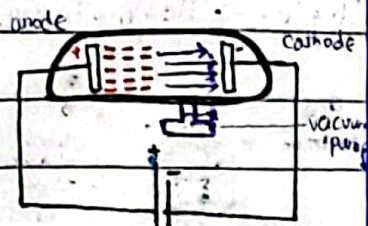
## Thermionic - heat

controls motion of electrons (beam).

## Emission. - release

heat is provided to filament electrons are emitted

- Grid focuses the electrons
- anode pulls the electrons.
- deflecting plates control the electron beam in x & y-axis.
- fluorescent screen shines where electron balls on it.

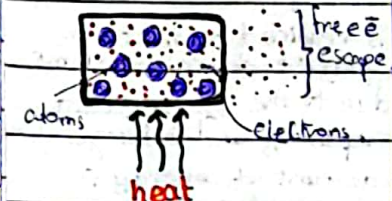
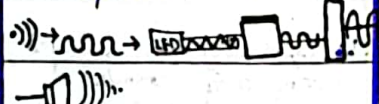


• Rays that move from cathode to anode are called cathodic rays.

## Analogue electronics.

quantities whose values varies continuously aka Analogue quantities

- Temperature.
- Branch of electronics consisting of circuits which process analogue quantities are called analogue electronics
- Amplifier.

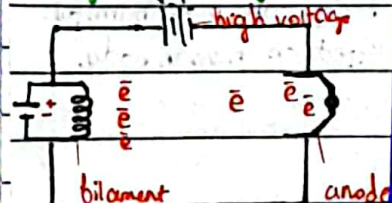


• when heat is provided to a conducting free e break the attraction & move out of the surface of metal, this escapism due to therm is called thermionic emission.

## Properties of e:

quantities whose values vary in discrete steps

→ Branch of electronics which deals with digital quantities



• when electric field is applied deflection of electron ray is seen towards the anode

switch: input. lamp: output.

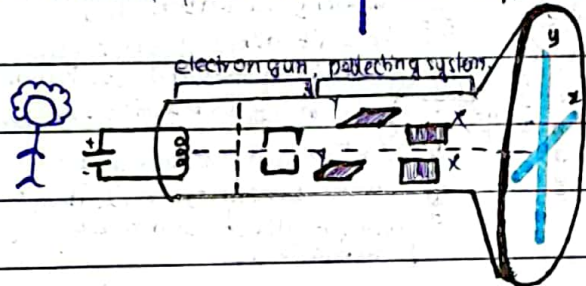
- open switch
- closed switch
- yes, one, on, closed.
- No, zero, off, open.

• when magnetic field is applied deflection of electron ray is observed.

## C-R-O:

visualize the electric currents & potentials.

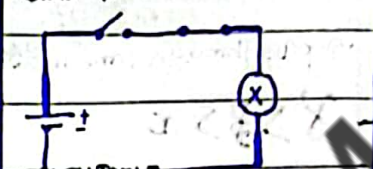
fluorescent screen.



## 'AND operation'.

$X = A \cdot B$

- symbol: dot (·).
- circuit: Series combination
- Input: A, B (or more)
- Output:  $(A \cdot B) = X$
- AND GATE in circuit:



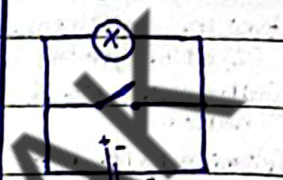
TRUTH TABLE:

A	B	X = A · B
1	0	0
0	1	0
0	0	0
1	1	1 (ON)

## 'NOT operation'.

$x = \bar{A}$

- symbol:  $\bar{A}$
- circuit: parallel combination
- Input: A
- Output:  $\bar{A} = X$
- NOT gate in circuit:



TRUTH TABLE:

A	X
1	0
0	1

## 'OR operation'.

$x = A + B$

- symbol: plus (+)
- circuit: Parallel combination
- Input: A, B (or more)
- Output:  $A + B$
- OR GATE in circuit.



TRUTH TABLE:

A	B	X = A + B
1	0	1
0	1	1
1	1	1
0	0	0

it will be 1 not 2 coz the answer is either 0 or 1.

## 'NAND Gate'.

$x = \overline{A \cdot B}$

- symbol:  $\overline{A \cdot B}$
- Input: A, B (or more)
- Output:  $\overline{A \cdot B}$

TRUTH TABLE:

A	B	X = A · B	X = $\overline{A \cdot B}$
1	0	0	1
0	1	0	1
0	0	0	1
1	1	1	0

## 'NOR Gate'.

$x = \overline{A + B}$

- symbol:  $\overline{A + B}$
- Input: A, B (or more)
- Output:  $\overline{A + B}$

TRUTH TABLE:

A	B	A + B	$\overline{A + B}$
1	0	1	0
0	1	1	0
0	0	0	1
1	1	1	0

## Uses of Logic Gates:

