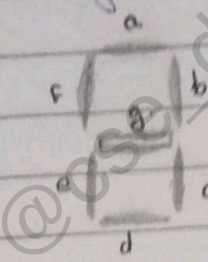
Seven Segment Display:-

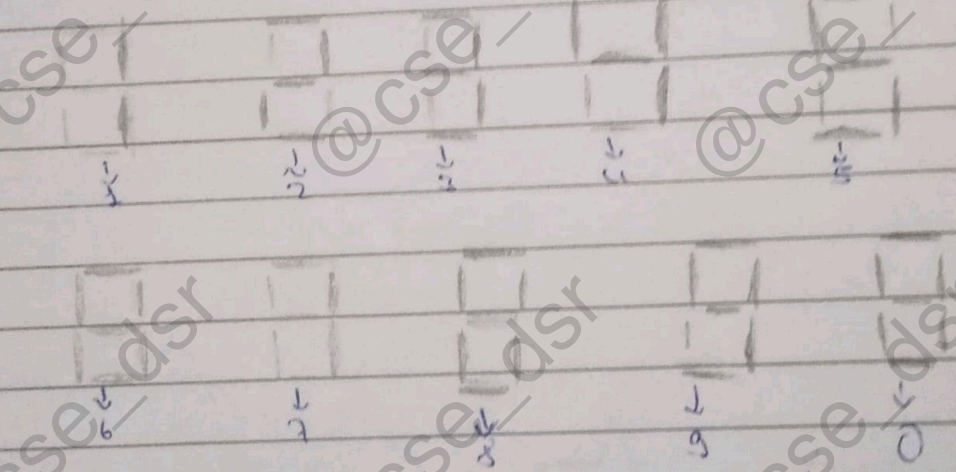
⇒ A display device which is used for displaying decimal digit 0 to 9.

⇒ This display contain seven segments so it is called Seven segment display.



→ Divided in seven segment a, b, c, d, e, f, g.

We can display the digits from 0 to 9 by these seven segments.



Truth Table for Seven segment display:-

Segment							
a	b	c	d	e	f	g	No
1	1	1	1	1	1	0	0
0	1	1	0	0	0	0	1
1	1	0	1	1	0	1	2
1	1	1	1	0	0	1	3
0	1	1	0	0	1	1	4
1	0	1	1	0	1	1	5
1	0	1	1	1	1	1	6

a	b	c	d	e	f	g	NO
1	1	1	0	0	0	0	7
1	1	1	1	1	1	1	8
1	1	1	1	0	1	1	9

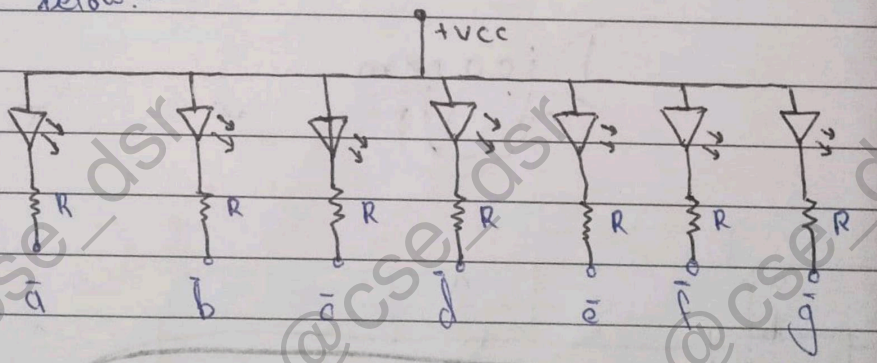
Types of Seven segment Display:-

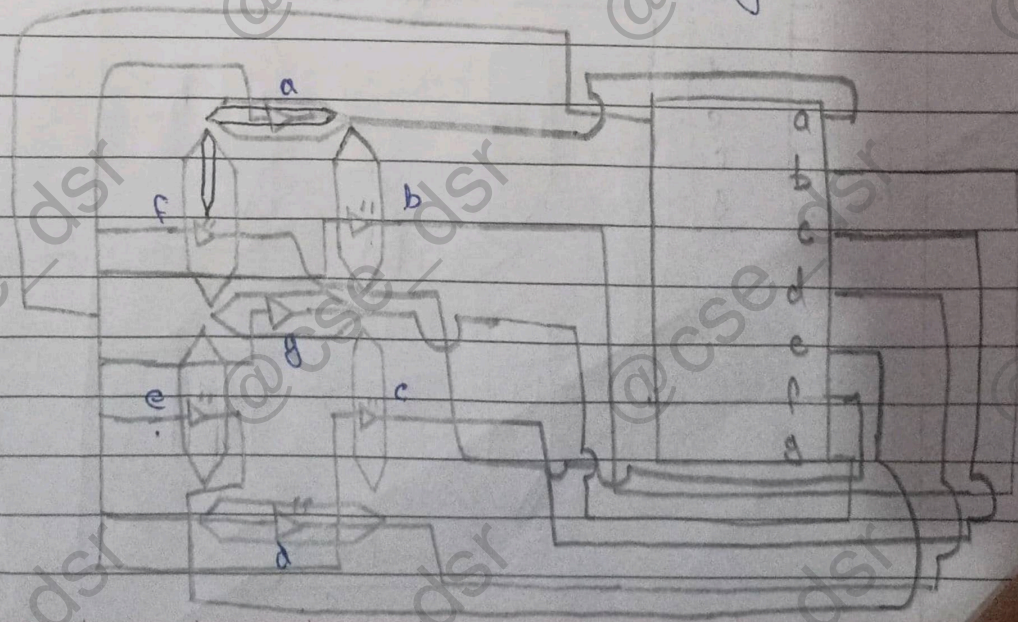
i) Common anode type
ii) common cathode type

Common anode type Seven segment Display.

⇒ In common anode type display all anode LED are connected together with +Vcc supply and cathode are goes in IC ckt

⇒ The ckt diagram of common anode type display is given below:-

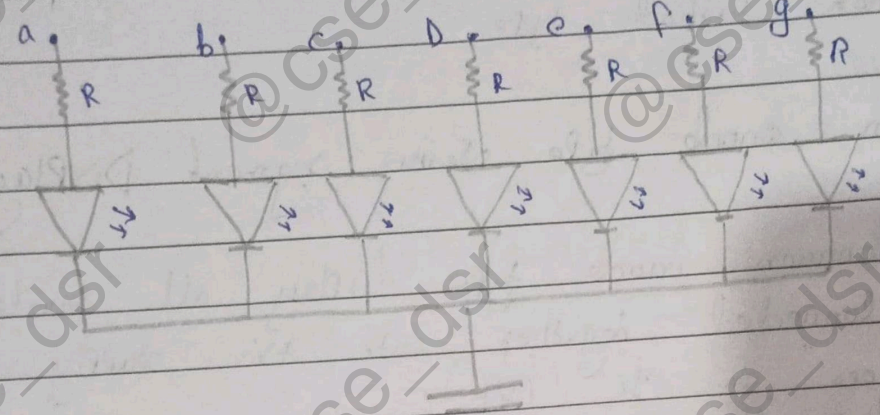




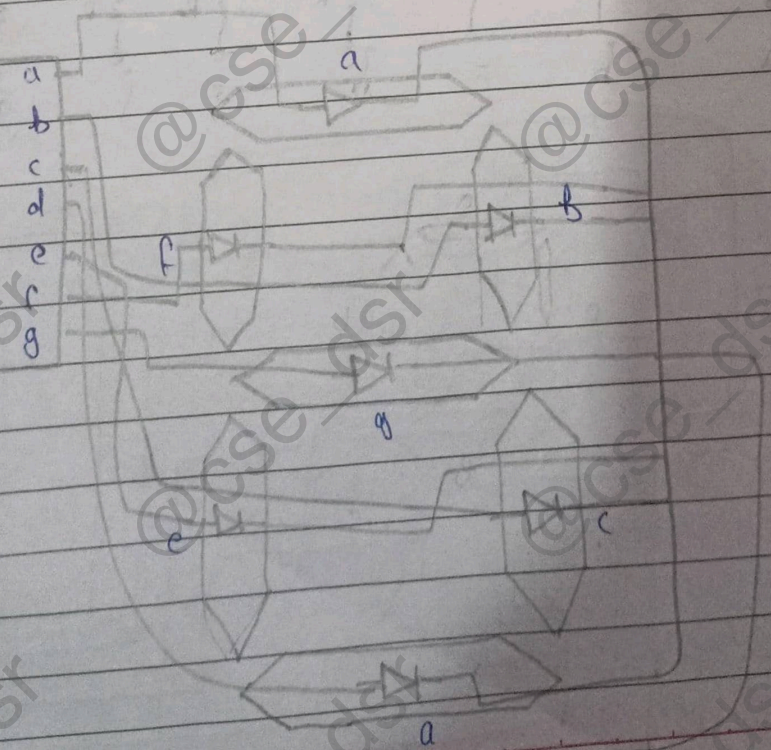
2) Common Cathode type seven segment display:

→ In Common Cathode type display all cathode of LED are connected together with ground and anode are goes in Ic ckt.

→ The ckt diagram of common anode type display is given below.



Diagram



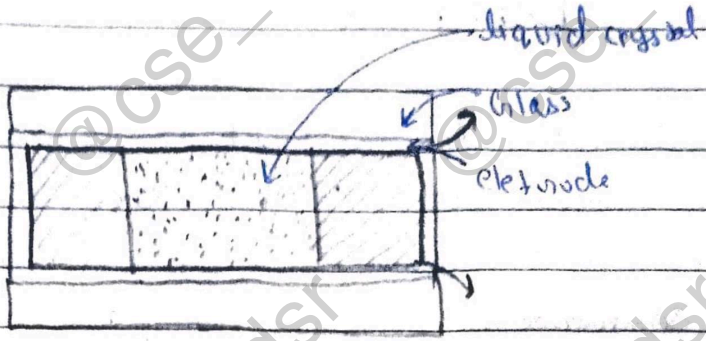
LED Display:-

⇒ LED stands for light emitting diode.
⇒ It is made by special type of semi conductor compound like GaAs, GaAsP, GaP etc.
⇒ These semiconductor compound give visible light energy when electron jump from valence band to conduction band.
⇒ It is a PN junction diode containing P type and N-type material but not made by Si and Ge.
⇒ LED always work in FB mode it does not work in R.B mode.
⇒ It emit different colours of light according to material used in it.
GaAs → Infrared (IR)
GaAsP → Red or yellow.
GaP → Red or green.
⇒ LED work on the principal of electroluminescence.

LCD

⇒ LCD stands for liquid crystal display.
⇒ A word liquid crystal which is called fourth state of matter (after solid, liq, gas).
⇒ These liq crystal have certain crystal properties and normally found in solid but flow like liquid.
⇒ LCD has an advantage that it consumes less power than LED. Its Power consumption is in microwatt But it has disadvantage that it require an additional light energy.

Basic Structure of LCD.



⇒ The basic structure of LCD is given above.

⇒ A thin layer of liquid crystal 10-20 μm thick is sandwitched b/w two glass sheet.

⇒ We put an transparent conducting material over it known as electrode.

⇒ After applying energy in electrodes we can change the molecular structure of liquid crystal.

⇒ The material used in the form of electrode is SnO_2 (Stannic oxide) and In_2O_3 (Indium oxide)

⇒ **Modes:—**

⇒ There are two mode for designing LCD.

i) Transmissive mode
ii) Reflective mode

- Transmissive = Light passes completly through both sides.
- Reflective = Mirror surface reflect back to the viewer.