BCD Seven Segment Display (Decoder)
## └ (Binary Coded Decimal)

__Display Devices:-__ Display devices are the output for Presentation of information in text or image form.

→ LED (Light emitting diode) is the most commonly used device for displaying the status of microcontroller Pim.

→ 7 segment LED display can be used for displaying digits & few characters.

→ A 7segment display consists of 7 LEDs arranged in the form of Square '8' and a single LED as a dot character.

→ A 7egment display is an electronic display, which display 0-9 digital information.

→ They are available in Common Cathode mode and Common Anode mode.

Common Anode   Common Cathode

Anode   Cathode
(P-type)   (N-type)

P.T.O
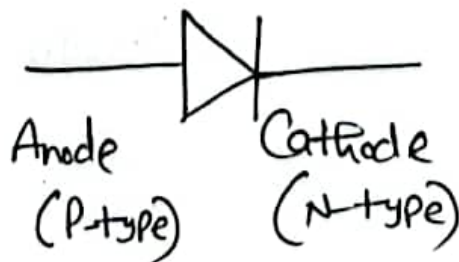
Anode Cathode of

Common Anode → (Here, all the LED are connected to
(C.A) battery or +Vcc and LED displays digits when some low
signal is supplied to the individual Cathode)

+ve (Supply)

a

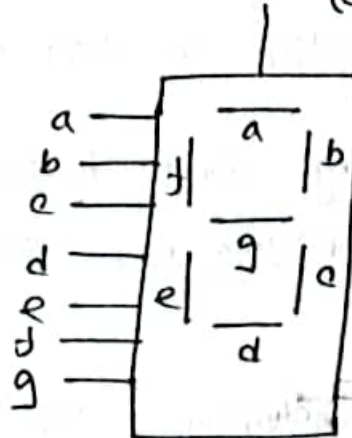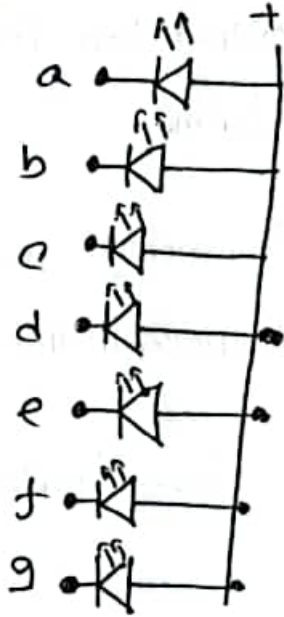b

c

d

e

f

g

+ve (Common Anode)

a
b
c
d
e
f
g

Fig: Common Anode Display.

cathode of

Common Cathode → (Here, all the LED are connected to the
(C.C) ground or -Vcc and LED displays digits
when some high signal
is supplied to the
individual Anodes.

a

b

c

d

e

f

g

a
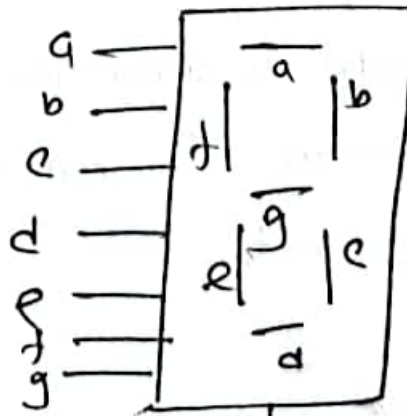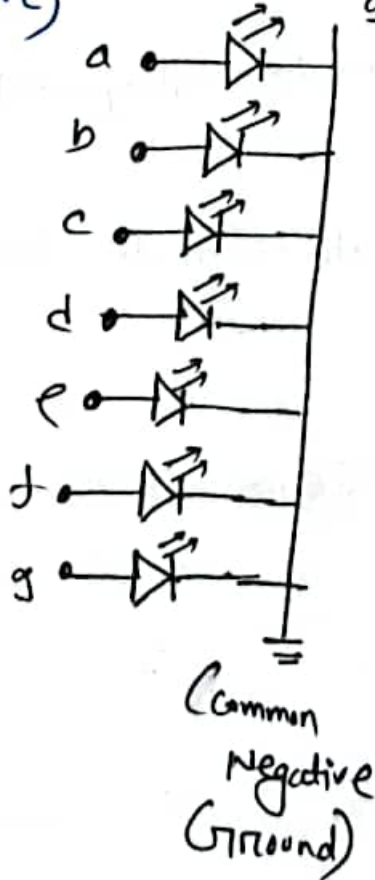b
c
d
e
f
g

— (Common Cathode)

(Common Negative Ground)

Fig: Common Cathode Display.

In Binary Coded Decimal (BCD) encoding Scheme each of the decimal number (0-9) is represented by its equivalent binary pattern (which is generally of 4 bits).

whereas, Seven Segment display is an electronic device which consists of 7 light emitting diode (LED's) arranged in a some definite pattern (C.C or C.A) which is used to display decimal Numbers as input in BCD. (0-9).

Here, 7 segment display does not work by directly supplying voltage to different Segments of LED.

first, our decimal Number is changed to its BCD equivalent signal then BCD to Seven Segment decoder Converts that Signals to the form which is fed to Seven Segment display.

This BCD to Seven Segment decoder has four input lines (A, B, C and D) and 7 output lines (a, b, c, d, e, d, & g) this output is given to Seven segment LED display which displays the decimal number depending upon inputs.

D ———— D | a
c ———— c | b
B ———— B | c / d / e / f / g (outputs) → a b c d e f g
A ———— A
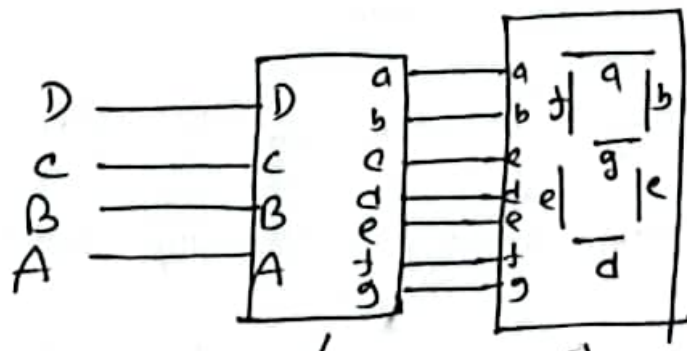
BCD to 7 Segment Decoder

7 segment Display

→ यदি figure Common Anode/Cathode হইতো truth table আলাদা আলাদা হইতো. আলাদা)

↓ Truth table for Common Cathode type BCD to 7 segment decoder.

Number	A	B	C	D	a	b	c	d	e	f	g
0	0	0	0	0	1	1	1	1	1	1	0
1	0	0	0	1	0	1	1	0	0	0	0
2	0	0	1	0	1	1	0	1	1	0	1
3	0	0	1	1	1	1	1	1	0	0	1
4	0	1	0	0	0	1	1	0	0	1	1
5	0	1	0	1	1	0	1	1	0	1	1
6	0	1	1	0	1	0	1	1	1	1	1
7	0	1	1	1	1	1	1	0	0	0	0
8	1	0	0	0	1	1	1	1	1	1	1
9	1	0	0	1	1	1	1	1	0	1	1
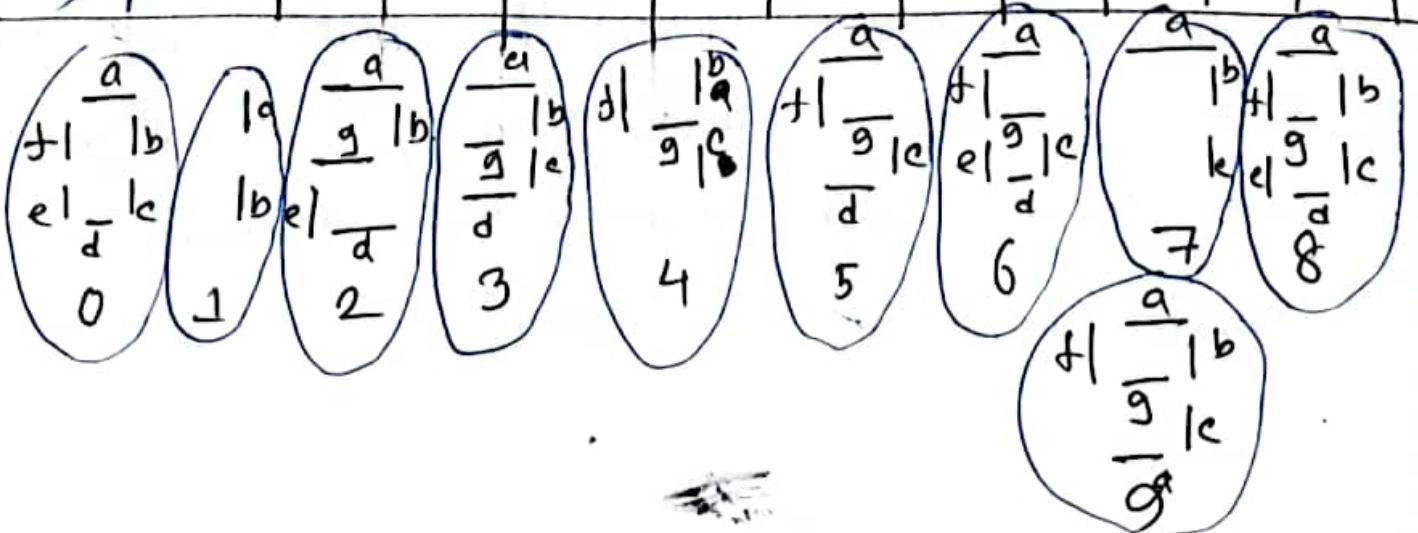
Truth table for Common Anode type BCD to 7 Segment decoder:-

number	A	B	C	D	a	b	c	d	e	f	g
0	0	0	0	0	0	0	0	0	0	0	1
1	0	0	0	1	1	0	0	1	1	1	1
2	0	0	1	0	0	0	1	0	0	1	0
3	0	0	1	1	0	0	0	0	1	1	0
4	0	1	0	0	1	0	0	1	1	0	0
5	0	1	0	1	0	1	0	0	1	0	0
6	0	1	1	0	0	1	0	0	0	0	0
7	0	1	1	1	0	0	0	1	1	1	1
8	1	0	0	0	0	0	0	0	0	0	0
9	1	0	0	1	0	0	0	0	1	0	0