OSD → it is the min distance open to vision of a driver of a vehicle trying to over take the slow vehicle a head safely against the traffic in opposite dirn

- Also called Passing sight distance
- OSD > SSD
- It is measured along the centre line of the road.

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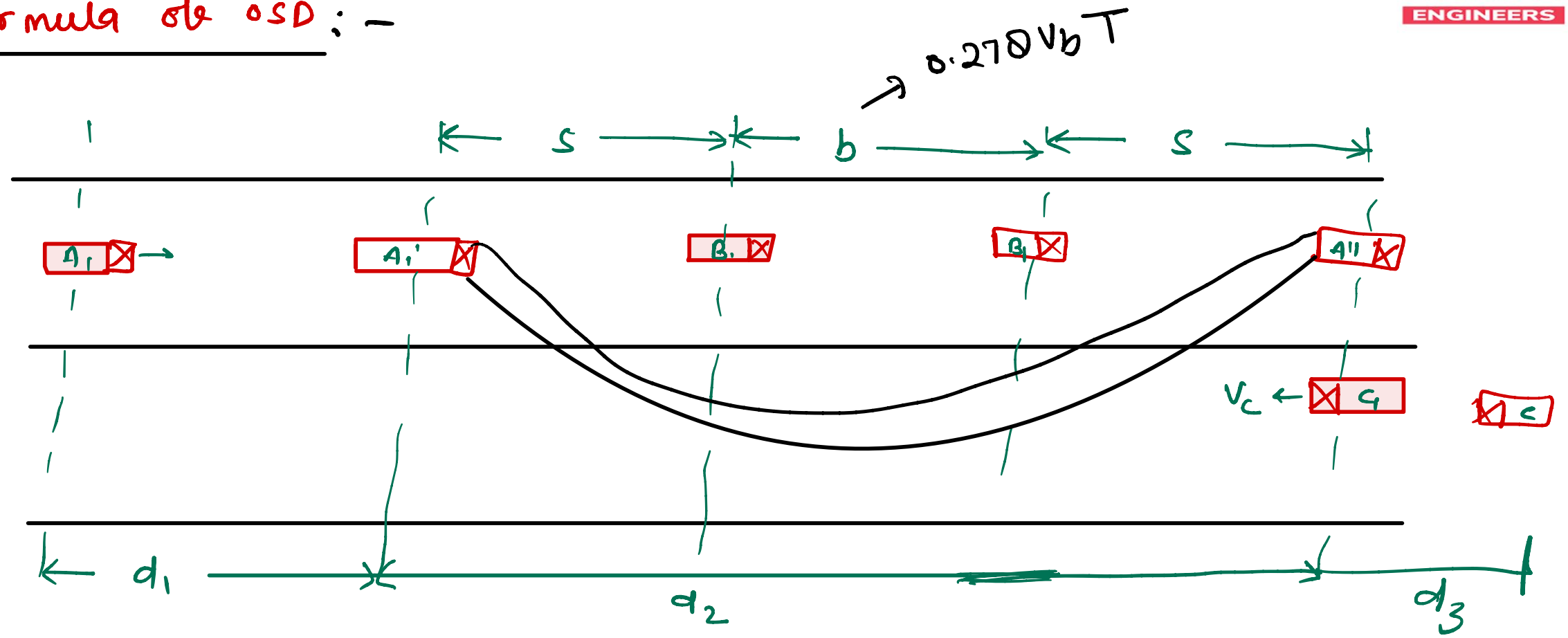
Formula of OSD :-



$$OSD = d_1 + d_2 + d_3$$

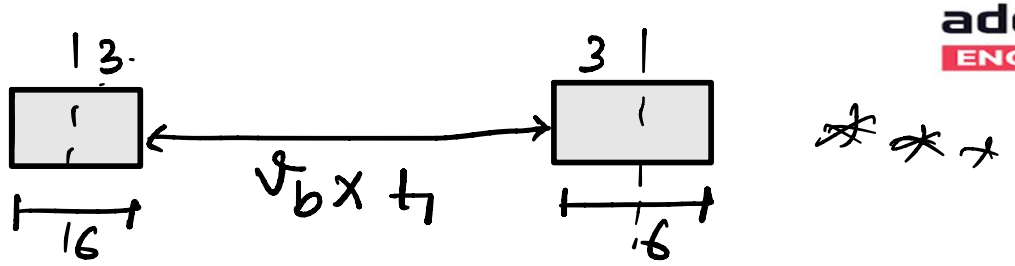
$d_1 = 0.278\, V_b t_r$

$d_3 = 0.278\, V_c\, T$

$d_2 = b + 2s$

$d_2 = 0.278\, V_b T + 2s$

$$OSD = 0.278 V_b t_r + 0.278 V_b T + 2s + 0.278 V_c T$$



$s = 6 + V_b \times t_1$ ($t_1 = 0.7$ sec)

$s = 6 + 0.7 V_b$ → m/s

$m = 6 + 0.7(.278\, V_b)$

$s = 6 + 0.2 V_b$ → kmph

m

Find out T

$$d_2 = b + 2s = ut + \frac{1}{2}at^2$$

$$= \cancel{ut} + 2s = \cancel{ut} + \frac{1}{2}aT^2$$

$$T = \sqrt{\frac{4s}{a}}$$

→ $a = m/s^2$

$$T = \sqrt{\frac{14.4s}{a}}$$

→ a 2 km/hr-sec

NOTE - IRC Recommends reaction time = 2 sec

* If V_b is not given then

$$V_b = (V_c - 16) \text{ kmph}$$

$$V_b = (V_c - 4.5) \text{ m/s}$$

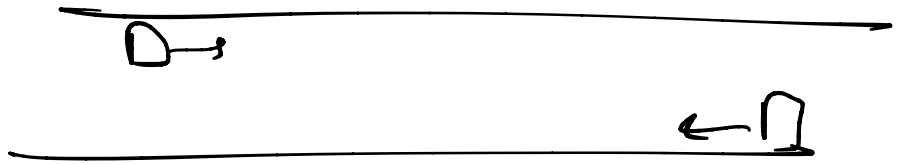
NOTE - 1 - One road with one way traffic

$$OSD = d_1 + d_2$$

2 - Single lane with two way traffic

$$OSD = d_1 + d_2 + d_3$$

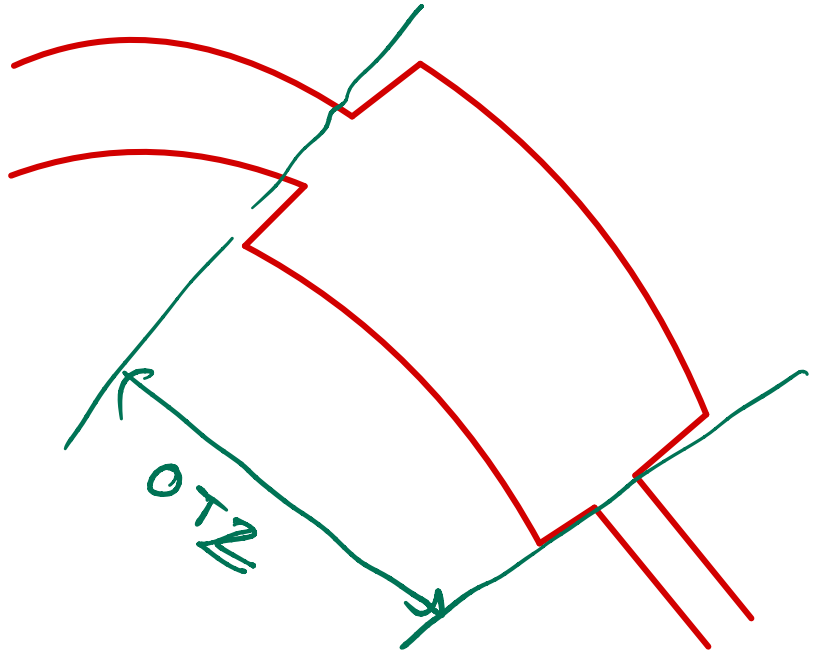
#



Over taking zone :-

min over taking zone = 3 x OSD

max " = 5 x OSD



Q- on a two way traffic road the speed of overtaking vehicle is 60 kmph & speed of slower vehicle is 40 kmph if $a = 0.92\ m/s^2$. determine the OSD.

Ans. $V_c = 60$ kmph. $V_b = 40$ kmph, $a = 0.92\ m/s^2$

* $S = 0.2V_b + 6 = 0.2 \times 40 + 6 = 14\ m$

$$T = \sqrt{\frac{4S}{a}} = \sqrt{\frac{4 \times 14}{.92}} = 7.05$$

$d_1 = 0.270\, V_b t_r = 0.270 \times 40 \times 2 = 22.24$

$d_3 = 0.270\, V_c T = 0.270 \times 60 \times 7.85 = 130.93$

$d_2 = 2S + b$

$= 2 \times 14 + 0.270 \times 40 \times 7.85 = 115.29.$

$OSD = d_1 + d_2 + d_3$

$= 22.24 + 130.93 + 115.29 = \underline{267.094\ m}$