

$$(*) \quad d = (u+v) \times$$

$$d = (u+v) \times 6$$

$$d = (u-v) \times 10$$

$$(u+v) \times 6 = (u-v) \times 10$$

$$6u + 6v = 10u - 10v$$

$$v = \frac{u}{4}$$

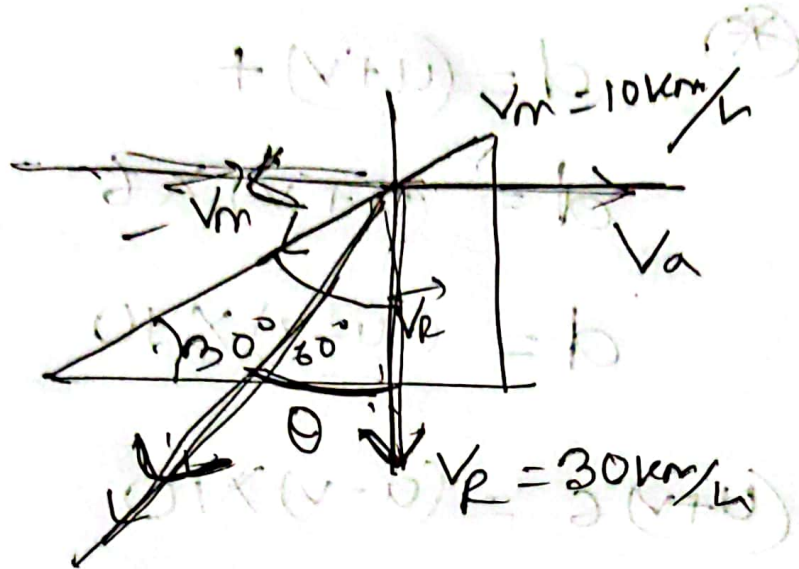
$$d = (u+v) \times 6$$

$$= \left(u + \frac{u}{4}\right) \times 6 = 7.5u$$

$$t = \frac{d}{u} = \frac{7.5u}{u}$$

$$= 7.5$$

(4)



$$V_{RM} = \sqrt{(V_r)^2 + (V_m)^2 + 2V_r V_m \cos 60^\circ}$$

$$= \sqrt{(30)^2 + (10)^2 + 2 \times 30 \times 10 \times \cos 60^\circ}$$

$$= 36.04$$

$$\tan \theta = \frac{V_m \sin 60^\circ}{V_r + V_m \cos 60^\circ}$$

$$\Rightarrow 13.89$$

$$V_a = V_{rm} \sin 13.89$$

$$= 36.04 \sin 13.89$$

$$= 8.65 \text{ km/h}$$

$$3. \text{ Find } V_{avg} = \frac{i+j}{I\sqrt{2}}$$