CALCULATION:-

by nodal analysis :-

At nodes A :-

$$\frac{V_A - 2}{470} + \frac{V_A}{330} + \frac{V_A - V_B}{470} = 0$$

$$\frac{V_A}{470} - \frac{2}{470} + \frac{V_A}{330} + \frac{V_A}{470} - \frac{V_B}{470} = 0$$

$$\frac{2V_A}{470} + \frac{V_A}{330} - \frac{V_B}{470} = \frac{2}{470}$$

$$660 V_A + 470 V_A - 330 V_B = 660$$

$$1130 V_A - 330 V_B = 660$$

At node B :-

$$\frac{V_B - V_A}{470} + \frac{V_B}{330} + \frac{V_B}{470} = 0$$

$$-330 V_A + 1130 V_B = 0 \rightarrow ②$$

$\text{①} \times 830 = 372900 V_A - 108900 V_B = 217800.$

$\text{②} \times 1180 = -372900 V_A + 1276900 V_B = 0.$

$$\overline{\hspace{4cm}}$$

$$1168000 \, V_B = 217800$$

$$V_B = \frac{2178}{11680}.$$

$$V_B = 0.1864 \, V.$$

Sob V_B in eq ①.

$$1130 V_A - 330(0.1864) = 660.$$

$$V_A = 0.63 V.$$

$$V_1 = V_A.$$

$$\Rightarrow 0.63 V.$$

$$V_2 = V_A - V_B.$$

$$= 0.45 V.$$

$$V_3 = V_B$$

$$= 0.18 V.$$