Date. Page.

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Matric No: 18/ENG06/1018, Mechanical

1. Zener diode regulator depends On the Zener ~~diode~~ Principle where the diode displays a resistance to voltage Change, With varying Current, after reaching the breakdown point. The Zener diode is replaced In Series With a resistor. Helps limit the Current flow and dissipate Some power. The bad resistor is then placed across the Zener diode, Since Components in parallel have equal potential drop equals the Zener voltage.

2. $I_{max} = 500 \times 10^{-3} = 500mA = 0.5A$

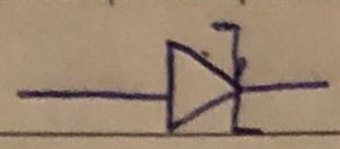
$V = \underline{5w} = 10V$
$0.5A$

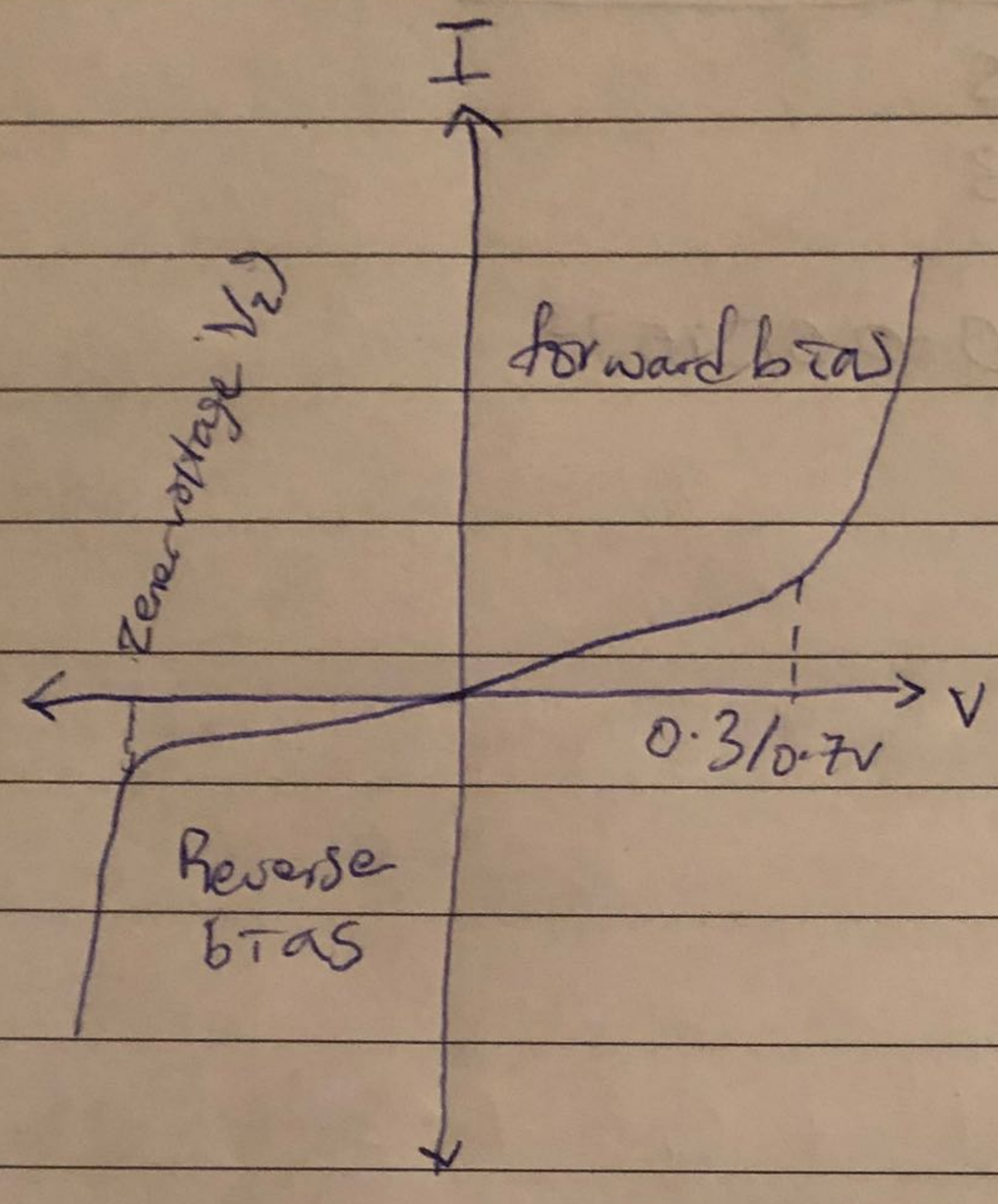
The minimum value

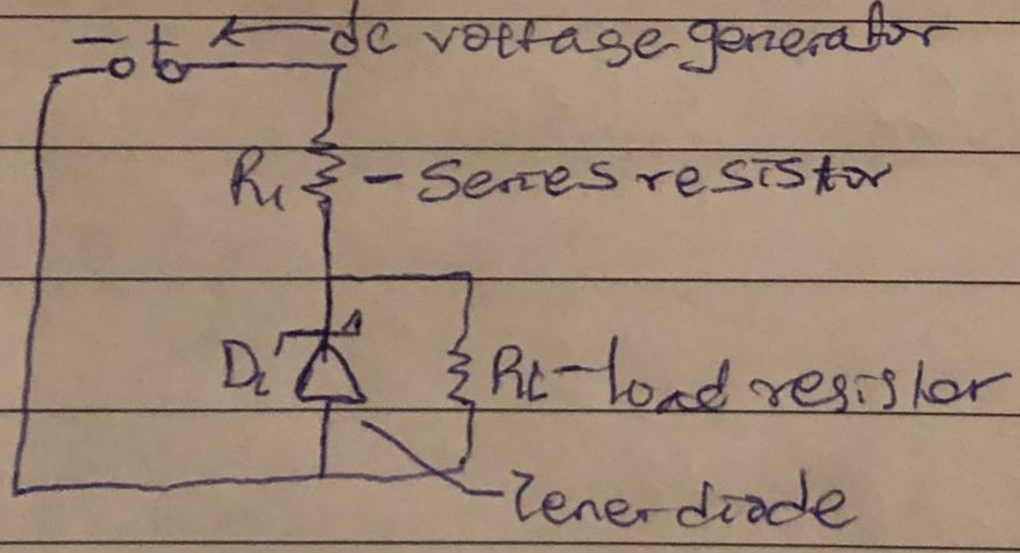
$R_S = \underline{V_S - V_Z} = \underline{20 - 10}$
$I_Z \quad 500mA$

$R_S = 20\Omega$

Date. Page.

1i  Zener diode





2·ii) $R_1 = 500\Omega$

$$I_1 = \frac{10V}{500\Omega} = 0.02A$$

$$I_2 = 0.5A - 0.02A = 0.48A$$