

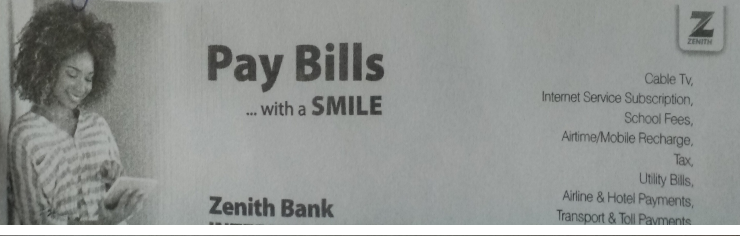
Date: Ogundimu Oluwatosin Daniel Speaker: _____

Topic: _____

Notes

18/ENG04/058
Elect/Elect

1. A zener diode regulator depends on the zener principle where the diode displays a resistance to voltage change, with varying current, after reaching the breakdown point. The zener diode is placed in series with ~~another~~ resistor. This resistor helps limit the current flow and dissipate some power. The load resistor is then placed across the zener diode. Since components in parallel have equal potential drop, the resistor loads potential drop equals the zener voltage.



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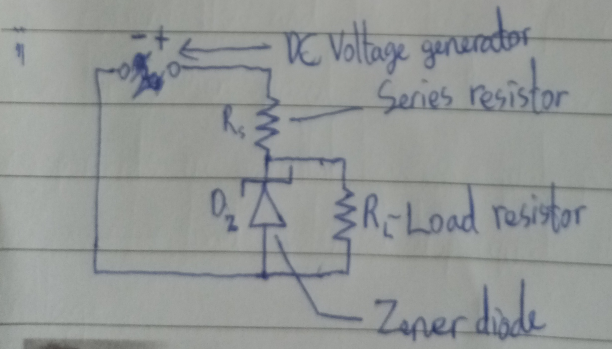
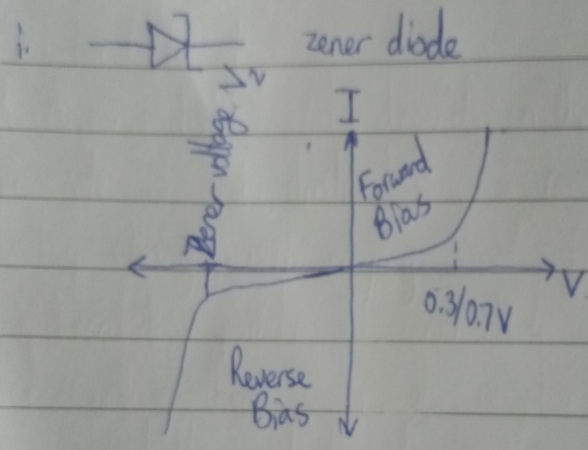
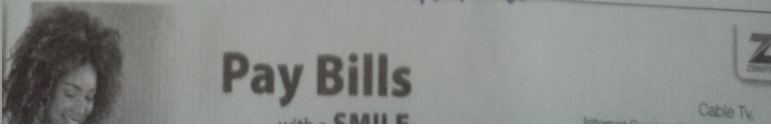
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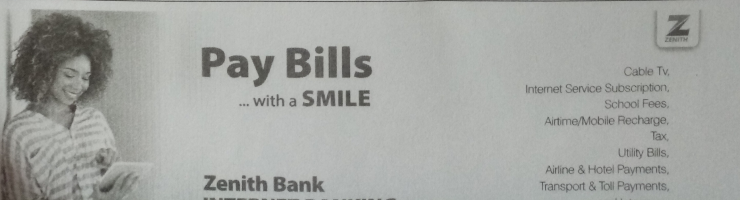
Notes

2. $I_{max} = 500 \times 10^{-3} A = 500 mA = 0.5 A$
 $V = \frac{5W}{0.5A} = 10V$

i. $R_s = \frac{20V - 10V}{0.5A} = \frac{10V}{0.5A} = 20 \Omega$ ans

ii. $R_L = 500 \Omega$
 $I_L = \frac{10V}{500 \Omega} = 0.02 A$

$I_Z = 0.5 A - 0.02 A = 0.48 A$ ans



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