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**MATRIC. NUMBER:** 18/ENG05/007

**DEPARTMENT:** MECHATRONICS ENGINEERING

**COURSE CODE:** ENG222

**COURSE TITLE:** BASIC ELECTRICAL ENGINEERING II

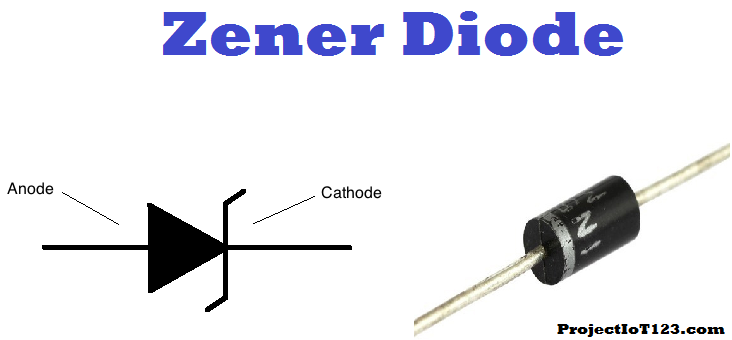
**QUESTIONS**

1. DESCRIBE A ZENER DIODE REGULATOR

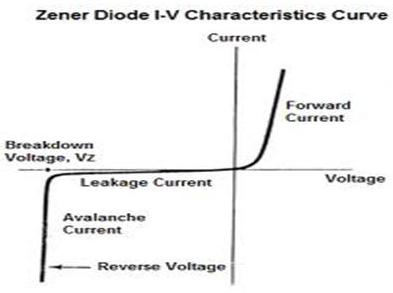
A Zener diode regulator simply means “Zener diode used as a voltage regulator”.

A Zener diode can be used to produce a stabilised voltage output with low ripple under varying load current conditions. By passing a small current through the diode from avoltage source, via a suitable current limiting resistor(RS), the zener diode will conduct sufficient current to maintain a voltage drop of VOUT.

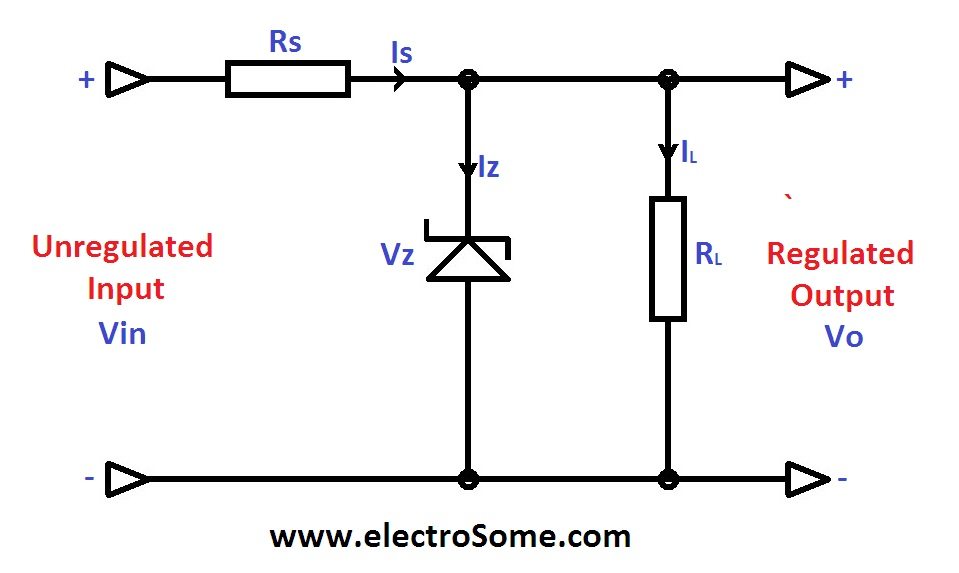
1. SKETCH THE SYMBOL AND I-V CHARACTERISTICS CURVE

SYMBOL: 

I-V CHARACTERISTICS CURVE:



1. SKETCH AND LABEL THE CIRCUIT DIAGRAM



1. Pz = 5W

Max Current (Is) = 500mA =0.5A

Vs = 20V

Vz = ?

RL= 500 ohms

Rs = ?

Iz = ?

IL = ?

1. Vs = Pz / Is = 5 / 0.5 =10V

Rs = Vs – Vz / Is = 20-10 / 0.5 =20 ohms

1. Iz = Is - IL

Where IL = VZ / RL = 10 / 500 = 0.02A

So, Iz = 0.5 – 0.02 =0.48A